

Week-ender

Special report
Frontiers in Science
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 Pages 2-17



ON THE FRONTIERS OF SCIENCE—Dr. Juan Roederer is director of the University of Alaska's Geophysical Institute, the largest of a vast complex of research institutes, centers and laboratories based in Fairbanks. Spending nearly \$40 million annually, university scientists do their

work out of the public eye but have a worldwide reputation. Today, a team of News-Miner reporters and photographers profiles the who, what, where and why of UA research and answers the question: what does it all mean to me?

(Staff photo by Eric Muehling)

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SUN SPARKLES ON SCIENTIST—Aboard ship in Southeast Alaska, a scientist obtains water samples from various ocean depths. Analyses of water levels will result in data for many different scientists in a

multitude of research projects. One of the 17 research units at the University of Alaska, the Institute of Marine Science has its own ship that constantly gathers information from Alaskan waters.

(Institute of Marine Science photo)

An overview

Hard questions asked about role of UA research

By SUSAN FISHER
Staff Writer

With 17 operating divisions and \$37 million pegged for research efforts this fiscal year, the University of Alaska is unquestionably in the research business.

And despite a recognized reputation in research, some hard-line questioning about the role and direction of the university's research efforts are being raised.

Part of that controversy surrounds questions of growth; a tight funding situation with bleak financial prospects for the next few years, and what priority research should be given.

Among key questions are:

- Should the state continue to fund research at a rate of some \$8 million a year to attract the even larger pot of money offered by federal agencies and institutions?
- How should research rate in relation to academic and instructional programs?
- Is university research competing with efforts that might be handled by private groups?
- How does this research effort benefit taxpayers, Alaskans in particular?

More than \$200 million has come into Alaska over the past years to pay for university research projects. During the 1978 fiscal year alone, the state will spend \$8.3 million coupled with \$28.93 million from other sources, mainly the federal government.

General estimates are that 80 per cent of the research money is spent in Alaska.

But despite those figures, university research officials say funds are tight, that federal money is becoming more difficult to get and that competition among U.S. universities is growing as a result.

The search for a new UA president, efforts to hold down expenses, and preparation of a university master plan and policies for the Board of Regents all are of concern to researchers.

Regents Sam Kito and Jeff Cook question if university research is competing for projects that could be handled by the private sector.

Cook suggests that if the university regents and administrators do not address the question soon, external forces, such as the Legislature, may do so.

A bill to restrict university bidding against the private sector for research projects was defeated in the last legislative session, but the issue may not be dead, Cook says.

Researchers, aware of the growing concern surrounding these and other questions, are improving efforts to communicate.

Dr. Vera Alexander, acting dean of the College of Environmental Affairs, recently organized a panel to discuss the role of research. Panelists with varying opinions participated.

Clearly even within the university there are differences, but Alexander said she was pleased with the first effort, and similar panels may be scheduled.

Kito was one of the panelists. He said that as one regent, he personally would favor cutting research and administration over cutting money for academic programs or instruction. He did add that his may be a minority opinion on the board.

Dr. Juan Roederer, Geophysical Institute director, says increased efforts must be made to tell the public what university research is all about.

For instance, Roederer recently met with state legislators, who toured research facilities and were briefed on current projects. He spent another afternoon talking with Alaskan military commanders. He has accepted speaking engagements before local service clubs.

There are some conflicts, even jealousies within the university itself, which officials recognize.

Roederer says scientists are as much interested in the university, its workings and future, as their purely teaching colleagues.

"The fact that we deal with millions of dollars and an English teacher does not, does not mean anything in terms of importance," he says.

Such tension between research and academic programs "is natural and logical because it happens everywhere. It's a nationwide phenomenon; it will never go away," Roederer adds.

But increasing efforts to communicate the importance, the role and the function of research can help ease some of those tensions with academic faculty, he suggests.

Even among researchers, the scramble for state and federal money for projects creates friction.

Those directly involved in research maintain that the university's present efforts are an asset not only nationally, but specifically to the growing and developing state of Alaska. Many of the projects directly relate to Alaska's climate, natural resources, wildlife and economy, among other factors.

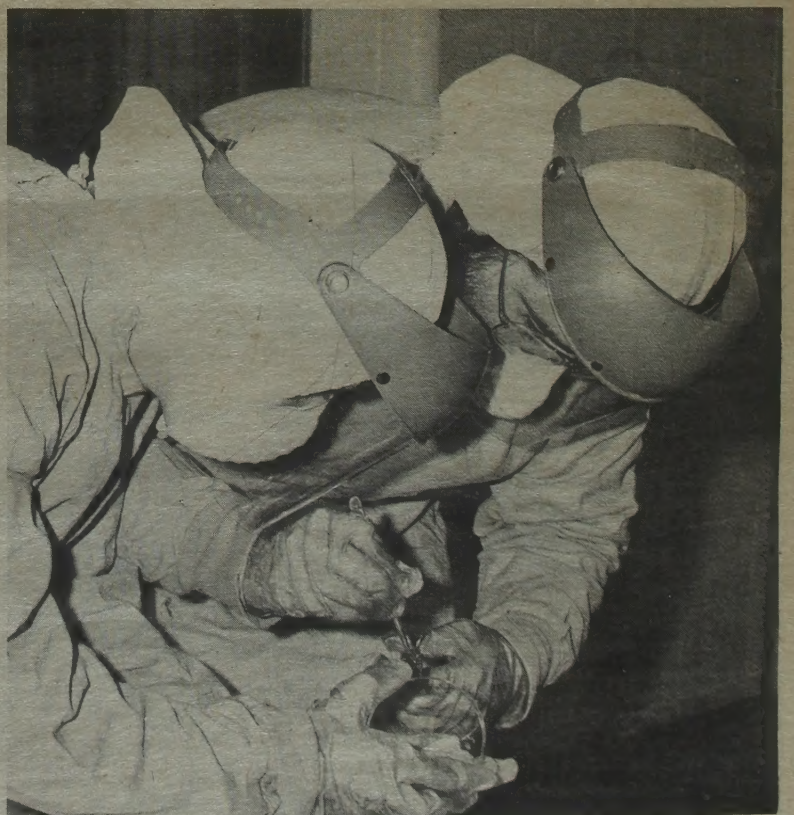
Frontiers of SCIENCE

Our team approach

A team of News-Miner reporters and photographers, assigned to profile the who, what, when, where and why of scientific research at the University of Alaska-Fairbanks, has produced these reports for today's Weekender:

- An overview of the role of science at the University of Alaska. Page 3.
- How does UA research affect the local and state economies? Page 4.
- An interview with Dr. Juan Roederer, director of the Geophysical Institute, and a sidebar on the institute itself. Page 5.
- At a glance, a look at the various university institutes, centers and laboratories, and what they do. Pages 6-7.
- University of Alaska scientists are involved in research throughout the world. Page 9.
- What's going on at the university-managed Naval Arctic Research Lab at Barrow? Pages 10-11.
- Who's who in UA research? Page 12.
- What role do students play in research? Page 13.
- UA administrators say jealousies between arts and sciences is a healthy part of the dynamics of a university. Page 15.
- What's the future of UA research? Page 16.
- How UA research affects YOU. Page 17.

With photo essays on Pages 2, 8 and 14, and illustrations throughout from News-Miner staff photographers and university photo files.



EXACTING TECHNIQUES—Researchers in 17 different units at the university, including these Institute of Arctic Biology scientists working under sterile conditions to develop a vaccine for reindeer, are investigating numerous projects that take them from the depths of the ocean to the ice fields of the Arctic. (Institute of Arctic Biology photo)

UNIVERSITY OF ALASKA

FY78 EXPENDITURES

RESEARCH

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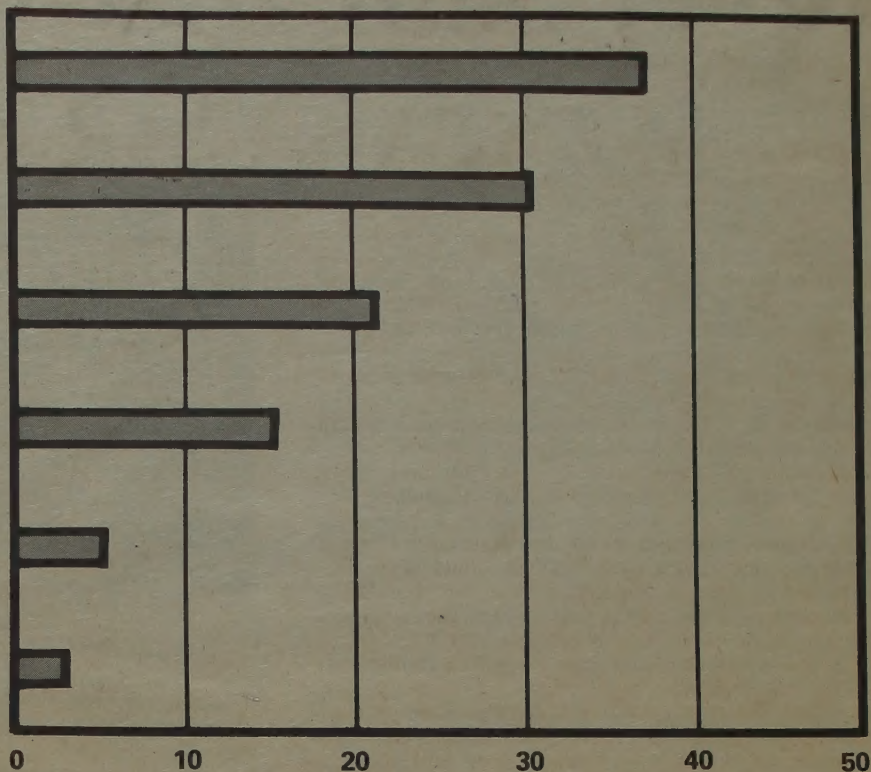
(Excluding research)

COMMUNITY COLLEGES & RURAL EDUCATION AFFAIRS

ANCHORAGE

STATEWIDE ADMIN. & REGENTS

JUNEAU



MILLIONS OF DOLLARS

UA SPENDING—In fiscal year 1978 about a third of the statewide UA budget went to research institutes, centers and laboratories, accounting for the spending of \$37.2 million, much of that in Fairbanks. Not only is research expensive but it is also responsible for

bringing in money—more than \$200 million total. During this fiscal year the state will spend \$8.3 million and the federal government \$28.93 million on research at the university.

UA research is big 'business'

By DAN JOLING
Staff Writer

All scientific value aside, the presence of the research arm of the University of Alaska in Fairbanks represents a healthy boost to the local economy.

Tied in to the salaries of teachers and researchers is money spent on projects, which tend to be expensive, and a number of government agencies attracted by the close proximity to the research institution.

In fiscal 1978, research institutes, centers and laboratories accounted for \$37.2 million spent, about a third of the whole statewide UA budget.

Over the years, more than \$200 million has come to the university as the result of research proposals. It's estimated that at least 80 per cent of that money was spent in the state.

Though study takes place in other spots in Alaska besides Fairbanks, most of the 17 research units are centered here.

The biggest spender is the

Geophysical Institute, with a budget of more than \$7 million, or about 19 per cent of the research total.

Its home is the eight-story C.T. Elvey Building on the west ridge of the Fairbanks campus, supporting a staff of 150, of which 45 are faculty.

Much of the institute's observation equipment is near Fairbanks, such as the Poker Flat Research Range in Chatanika and the Ester Dome Observatory.

Of the \$37 million spent on

research in 1978, about \$8.3 million or 22.3 per cent came from state appropriations. About \$29 million came from sources outside Alaska, mainly the federal government.

The biggest contributor was the Department of Defense's Office of Naval Research, with more than \$9 million—nearly a quarter of the budget.

The National Science Foundation chipped in another \$5.1 million, and the National Oceanic and Atmospheric Administration, a division of the Department of Commerce, accounted for almost \$4.2 million in grants.

Besides the benefits from the research units, the local economy is boosted by government agencies that choose to locate in Fairbanks to take advantage of close proximity to the research arms of the university.

Tied to the programs in some way on the federal side are the Environmental Protection Agency's Arctic Environmental Research Laboratory, the Geological Survey, the Bureau of Mines and the College Magnetic and Seismological Observatory of the Department of the Interior, and the Department of Agriculture's Institute of Northern Forestry.

Related state agencies include the Department of Natural Resources' Division of Geological and Geophysical Surveys, the Department of Transportation's State Materials Laboratory and the Department of Environmental Conservation's Office of Research and Academic Coordination.

All told, related state and federal agencies represent at least 100 jobs in Fairbanks.

Less visible are the benefits to the local tourist industry. Local tourist-related businessmen were distressed to view the exit of musk oxen kept at the university until the fall of 1977.

With the arrival of 16 of the animals next year, the university's research department can again be credited with spicing up the tours of visitors to Fairbanks.



ECONOMY BOOSTER—Undergraduate students Mike Coffing and Dave Mesiar are able to take advantage of UA research institutes by studying in the vertebrate biology lab in the Irving

Building on West Ridge. In addition to being a learning aid to students, the research business also provides jobs for some Fairbanksans.

(Staff photo by Evan Bracken)

Geophysical Institute

Research is 'survival of fittest'

By SUSAN FISHER
Staff Writer

More than 20 years ago, as a student in Argentina, Dr. Juan Roederer was aware of the University of Alaska's Geophysical Institute. Even then, the largest research institute here had a far-reaching reputation.

Today, Roederer directs that mammoth institute. He is frank about its graces and shortcomings.

With a \$7 million budget, the Geophysical Institute accounts for almost 20 per cent of the university's entire research expenditures.

Its reputation "is international, absolutely international," says Roederer. The Geophysical Institute celebrates its 30th anniversary next year.

It stands as a leader in polar and arctic geophysics, the study of the northern lights, permafrost, ice, snow, climate, cloud physics.

Its reputation can be further attested by the fact that it is the fourth-ranked recipient of funds from the National Science Foundation, the prime funding source today for basic research.

The institute's NSF grants have increased from \$1.6 million last year to about \$2.4 million this year.

Unlike other countries, American universities must compete for grants to pay salaries and support projects. In European countries, and even countries in the Soviet sphere, there is no scramble for salaries, which are generally picked up by the government.

Salaries alone account for about three-quarters of research funding, Roederer estimates.

Yet the American system is good.

"It puts all the universities in a very strongly competitive stance," Roederer says. "Let's face it, we have to work like a private company. We have to bid. We submit research proposals—most are solicited. If we don't perform, forget it."

"It's a very good system, and I would definitely say it's one of the reasons why American science is tops in the world, because of this competitive stance of research funding," the director adds.

There are handicaps. Salaries here "are terribly high compared to the Lower 48," Roederer says, and it costs more to ship equipment and to travel. Field work on the North Slope, where several experiments take place, is "horribly expensive."

Attracting and keeping top talent is one of Roederer's concerns.

"It has become increasingly difficult (to get funding), very much so. But we have been extremely pleased with the steady increase in external support. That simply speaks for the quality of our people."

"I have a number of people who would love to come—senior scientists—but I can't offer them a job because there's sort of a freeze in positions. That's one of the aspects that hopefully will be resolved, perhaps when the new (university) president comes," says Roederer.

Younger scientists are not as familiar with the institute, and a tough university policy on promotion and tenure coupled with common misconceptions about life in Alaska hinders tapping those young talents.

Roederer says the university needs a more flexible policy toward promotion and tenure.

Alaska today is a crucial state, not only because of its resources, but because it is a developing state.

"It's only now in the process of getting organized and becoming an advanced component of the U.S. There's a lot of work to be done for the state by the university, so we do get stronger support from the state than an average university does," Roederer says.

Within the university itself, there is some competition among researchers and research institutes for money. There are still occasional "ill-feelings" among institutes, but Roederer says the Geophysical Institute's doors are open.

"With the tight funding today, people band together and submit joint proposals. It's a matter of life and death. Survival of the fittest. Each individual scientist has to seek support for his or her project," he said.

With the easing of some past financial snarls, "the university really now is in the process of finding its own identity—the missions are only now being defined clearly," Roederer says.

"When I came here I was under the impression that a director of a research institute was roughly at the same level as a dean. That



OPEN DOOR POLICY—Scientists like Stuart Hamilton, who is checking a temperature recorder in an I.A.B. study of plants adapting to hot springs soils and permafrost-dominated sites, may find survival in the expensive world of research by combining proposals. The director of the largest institute says the doors of his institute are open to researchers in other fields.

(Institute of Arctic Biology photo)

is not the case, really. However, it's not spelled out anywhere," he adds.

In January, Roederer will become dean of the College of Environmental Sciences. That college encompasses geophysics, marine sciences and arctic biology.

The dean's chair will rotate each three years among the three departments. Yet those same department heads are also institute directors.

Roederer, for instance, is Geophysical Institute director and the director of the Geo-Sciences Division. As the institute director, he is responsible for all research activities. As division director, he is responsible for academic affairs. Division directors report to the college dean.

Roederer also has a sales pitch for maintaining, if not improving, support staff within the Geophysical Institute.

"We have to work like a private enterprise. We have to seek out the best individuals, not just scientists—everybody has to be tops." According to Roederer, that means secretaries, clerical workers, business office personnel and electronics technicians.

"We can defend our scientists in front of pressures from the university and others, but it's very tough for us to defend a good secretary or electronics technician," he adds.

Research as a profession is being scrutinized nationally. Roederer observes that there is a decline in some fields, such as astronomy, and some physics, but a strong increase in geology, for example, because of growing interest in exploring resources.

Most of the physics decline is due to the boom then decline in space research, Roederer says.

After three decades, it's still one of a kind

By DERMOT COLE
Staff Writer

The University of Alaska's Geophysical Institute is one of a kind.

Founded by an Act of Congress some 30 years ago, the institute is the only U.S. center for basic research at high latitude.

Auroral disturbances that disrupted long-distance radio communications during World War II prompted the federal government to create the institute to study the problem after the war.

Since then the institute has extended its grasp to other areas of geophysics, including a wide range of studies of

meteorology and the solid earth sciences, according to a recent review of UA research.

Supported mainly by federal grants and contracts, there are about 150 staff members at the institute, including 15 graduate students working as research assistants.

The research program deals with phenomena that can best be studied at high latitude or which present special problems in Alaska, UA officials say.

Upper atmospheric physics and chemistry, the aurora, the earth's magnetic field, radio communications, solar-terrestrial physics, meteorology,

seismology and several fields of geology and geochemistry are among the areas delved into by institute staffers.

Subjects for research range from ice fog in Fairbanks to the inner workings of Mt. Augustine, a volcano in upper Cook Inlet; from the puzzling Badger Road fault that is the center of frequent small earthquakes in the Fairbanks area to the northern lights.

"Alaska is a 'geophysical laboratory' unique of its kind on our planet. Its ionosphere is a giant 'television screen' on which many outer-space phenomena are continuously being displayed, ac-

cessible to scrutiny from ground, aircraft, balloons and rockets," wrote Institute Director Juan G. Roederer in the latest edition of the UA's report on research.

"Alaska's lower atmosphere and troposphere are the birthplace of large-scale perturbations that often are found to spread over the entire North American continent. Its layers of snow, ice and permafrost play a dominant role for its biosphere; its glaciers are the largest on the American continent. Underground, Alaska is an awesome inferno of tectonic force and motion," Roederer wrote.

Research at a glance

From the sea bottom to outer space, UA's research probes the unknown

If there's one thing you can say without fear of contradiction about research at the University of Alaska, it's that the variety seems limited only by imagination and the amount of money available.

UA researchers are looking at the heavens, the bottom of the sea and many points between the two.

Here is a glance at some recent UA research:

Geophysical Institute

Aeronomy and space: breakthroughs in the understanding of auroral formation include the development of a computer program to numerically simulate conditions of the magnetosphere and the discovery that pulsating aurora can be artificially triggered through the release of barium into the upper atmosphere.

Jupiter's magnetosphere is also being investigated by an international team including UA scientists.

And the institute has begun studies of the relationship of solar activity to the earth's weather.

Meteorology, snow and ice: The UA is a site for a regional solar energy meteorological research and training center. A permanent station will be set up to monitor radiative flux components and meteorological quantities such as air motion, humidity and temperature.

Studies continue on permafrost, sea and river ice, periodic glacier surges and interaction of glaciers and volcanoes.

Solid earth: Studies on the earth's ancient magnetic field confirmed that "until relatively recent geologic times" the Alaska Peninsula was considerably farther south than it is now, once even extending south of the equator.

Oil companies are interested in a new coal-dating technique in which volcanic minerals deposited with coal beds are dated by a potassium-argon and fission-track process.

The Alaska Earthquake Analysis Center has been established at Fairbanks under the U.S. Geological Survey, and an investigation of the Benioff earthquake zone was recently completed.

An expanded inventory study has begun of Alaska's geothermal resources.

Satellite environmental research: Satellite imagery helped the Bureau of Land Management fight Seward Peninsula fires and complete vegetative and water resource inventories. Satellite information was also used by the state to help select test plots for land-clearing experiments near Delta.

Institute of Marine Science

Biological and fisheries oceanography: Intensive dredge and trawl surveys in the Bering Sea and the northeastern Gulf of Alaska have increased investigators' ability to predict new fisheries.

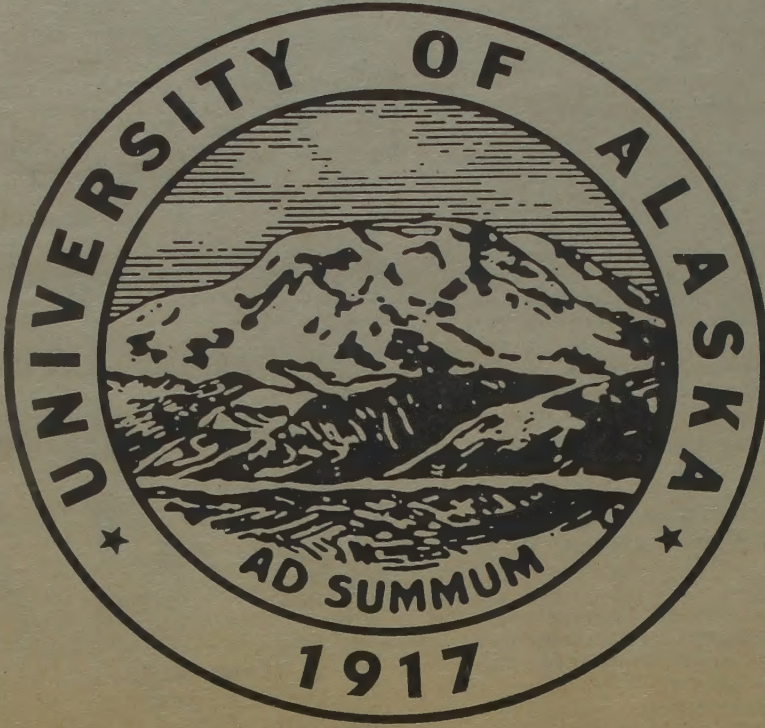
A new sea water laboratory at the Seward Marine Station operated by the IMS has been used for several new studies of crab.

OCS work has brought on research in fish diseases, especially bottomfish, and new methods of examining shellfish extracts has led to better understanding of the paralytic shellfish poisons common to Alaska.

Chemical Oceanography: Studies of oil's effect on the marine environment are being conducted at the Seward Marine Station, in Cook Inlet, at the Valdez pipeline terminal and in the Beaufort sea.

Physical Oceanography: IMS scientists are studying the relationship of water temperature and circulation to fisheries population, hoping to aid both the fisherman and coastal zone and fisheries planners.

Ocean Engineering: A variety of studies are looking at the impact of ballast discharge water on the port of Valdez and the Valdez narrows. The water comes from about half of the oil tankers loading at Valdez and goes



through a treatment plant before running into the harbor.

The IMS is also developing specifications for a proposed \$12 million, 190-foot iceworthy research vessel, the first produced in this country.

Geological oceanography and marine minerals: Research of sedimentation along the shores of the Beaufort Sea had one unplanned result—the recognition of new sites for gravel that could be used for oil platform drilling islands. The IMS will also conduct a major pre-mining environmental survey of marine waters in southeast Alaska.

Alaska Sea Grant Program

Renewable Marine Resources: Studies are continuing on both the biological and economic considerations of the state's program to enhance the salmon fishery, which declined from a 1936 peak of 126 million fish to a 1975 low of 20 million.

Other questions being researched are why the Kodiak area shrimp population has declined in recent years, if a viable clam fishery can be developed in Alaska and if livestock will eat fish processing waste products.

Sea Grant economists are studying the economics of under-utilized fisheries, especially bottomfish—increasingly important to American fishermen because of the 200-mile limitation on foreign fishing fleets.

Information services: Alaska fishermen are being given safety education and assisted with information ranging from gear selection to income-tax preparation as part of the Marine Advisory Program.

Institute of Water Resources

Energy Resources: Studies were finished covering the effect in winter of the Municipal Utilities System power plant discharge into the Chena River in Fairbanks, solar energy resources and the politics of Alaskan hydroelectric development.

Institute of Arctic Biology

Botany: Completion of a provisional classification of the Alaskan tundra was aided by the increased access provided by the haul road. Also along the road IAB scientists experimented with revegetation by native tundra species, finding that such species require at least two years after application of fertilizer before flowering is enhanced.

Animal Science: A study of the acclimation of a certain type of beetle to extremely cold temperatures revealed the formation of polyhydric alcohols that prevent formation of cell-

damaging ice crystals.

Scientists also studied body composition of reindeer and caribou, concentrating on the use of lipids—fats—and their modification during the summer in preparation for winter.

Blubber lipids in seals and walrus were studied to determine their relation to diet.

A study of the seals during diving has shown that circulation is altered so as to reserve oxygen for those tissues with an imperative need for it—similar to a process found in human childbirth between the time umbilical cord-supplied oxygen is cut off and the lungs are inflated.

Also being studied is brucellosis and the role of certain predators in transmitting it among reindeer and their

herders, and contagious ecthyma, a disease that broke out recently among populations of Dall sheep and musk oxen.

A cooperative study comparing seasonal rhythms of Middle European birds Alaskan species revealed "internal biological clocks, operational on an annual basis," which control the birds.

Other bird studies concerned the detrimental effects of oil or gas pollution on lowland bird breeding populations.

Anthropology: Recent archaeological excavation at the UA's Dry Creek site extended dating of finds back about 11,000 years. The UA also studied the socio-economic aspects of reindeer herding, Native hire during pipeline construction and the effects of television on previously untouched audiences in Alaska.

Biome Center

Tundra Ecosystems: Plants were shown to be able to defend themselves against herbivores by chemical as well as physical mechanisms. A look at the variations in the amount of toxic substances carried by plants may help explain the cyclic population fluctuations of mammals in the arctic and herbivorous insects farther south.

A study of mosses on stands of black spruce indicates the moss may be a key to low soil temperature and in turn nutrient limitation and low productivity of the stands.

Alaska Cooperative Wildlife Research Unit

Information from the study of the reaction of caribou to pipeline structures was used in designing the trans-Alaska pipeline and its feeder systems at Prudhoe Bay. Satellite imagery was used to map and assess reindeer and caribou ranges, affecting development of resource management plans.

Also studied were predator-prey-scavenger relationships in northern Alaska, particularly the wolf-caribou connection and the ecology of wolverines and arctic foxes.

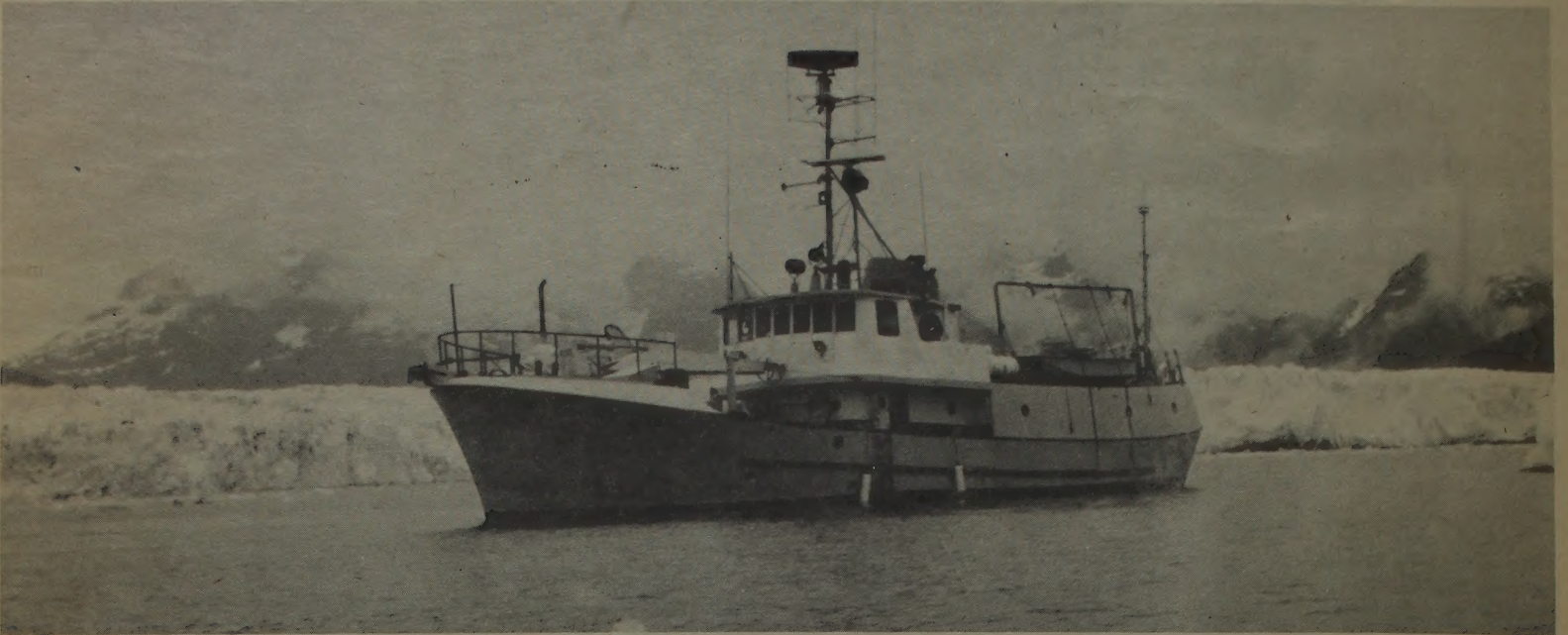
The Yukon-Kuskokwim Delta was demonstrated to be an important breeding area for sandhill cranes.

Alaska Cooperative Park Studies Unit

Anthropology: The unit has worked with Native corporations to help inventory cultural resources, collect oral
(Continued on page 7)



RAPESEED RESEARCH—University of Alaska agronomy instructor Charles Knight screens the straw from rapeseed after thrashing on a test plot at Delta Junction. The university is conducting field trials on rapeseed varieties since the oil seed crop may be grown for Asian markets on the state's Delta agricultural project.
(UA photo by Sabra McCracken)



OCEAN-GOING LABORATORY—Scientists on the Research Vessel *Acona*, part of the research apparatus of the Institute of Marine Science, conduct studies in waters near the Columbia Glacier south of Valdez. With a

docking base in Seward, the ship has taken university researchers to the tip of the Aleutians, as far south as Ketchikan and north to the Chukchi Sea. At 199 tons and 85 feet in length, the ship provides quarters for 15.

(Institute of Marine Science photo)

Research at a glance

(Continued from page 6)

histories, write National Register nominations, write cultural histories and plan cultural or heritage centers.

Biology and resource management: The unit completed much of the required inventory in proposed national interest lands and completed impact or pre-impact studies on the air quality of Glacier Bay National Monument, whale-vessel interactions, effects of road traffic on animals in McKinley Park and experimental work relating to protection needed by wolves at den sites.

It was shown there is no cause to extend currently protected zones around wolf dens.

Alaska Cooperative Research Unit

Research in this new unit will aim at improving the understanding of primary and secondary production in high-latitude aquatic ecosystems.

The specific dynamics of fish production will be studied, as will the social and economic impacts of the development of fisheries and invertebrates.

WAMI

A detailed study of violent deaths in Alaska—where an inordinate proportion of deaths are caused by accident, suicide, homicide and alcoholism—is being used by the state's three health systems agencies in planning.

The use of live, two-way television has begun for medical education and consultation and for recruiting minorities to health careers.

WAMI specialists also conducted itinerant birth defects clinics in six Alaskan communities in the past year.

Agricultural Experiment Station

Food production: Aimed at enhancing production in the Delta barley project, the station worked at refining variety selection and cultural practices to increase yields of small grains and rapeseed. Summer fallow management was found to increase yield from 26 to 60 per cent.

The potential of buckwheat and millet is also being evaluated for the Delta Junction area.

Researchers found that a variety of strawberry can be grown here with polyethylene to warm the soil, and that the use of surplus industrially heated water on horticultural crops has the additional benefit of reducing evaporation and ice-fog.

Simulated surplus heat was found to produce excellent yields of high quality roses.

At the Palmer Research Center, meal from crab processing waste was found to compare favorably with soybean meal when eaten by dairy cattle.

Processing, transportation and marketing: The AES participated in trade missions to and marketing studies within Pacific Rim countries to

determine markets for Alaskan agricultural commodities. The feasibility of truck gardening in the Kuskokwim Delta and controlled-environment farming at Kenai were also examined.

Resource inventories and management: Cooperative agency studies included a crop climatic condition inventory, an economic assessment of resources in the Copper River Delta Planning Unit, a multiple-use rangeland study and a look at Native lands taxation policies.

AES research information was used in rehabilitation procedures following two major oil spills along the trans-Alaska pipeline.

Data from forest test plots between Fairbanks and Nenana indicate that, following logging, the competition from herbaceous and small shrub species prohibits any rapid regeneration of white spruce.

Institute of Social and Economic Research

Social studies: Continuing study of the impact of the oil pipeline construction period on Fairbanks indicates that "while the population as a whole experienced a dramatic increase in economic well-being, the distribution of benefits and costs were unevenly distributed."

Also studied as part of the Man-in-the-Arctic Program were North Slope Native employment and subsistence activities. A decline of time spent in subsistence activities since 1970 was attributed largely to increased restrictions on hunting caribou and bowhead whales. Also examined were the potential effects on Natives of establishing a national forest in the upper Yukon-Porcupine River region.

Economic studies: A study on in-state use of Alaska's royalty oil indicated that state expenditures, if maintained at the present level, "would cause the ALPETCO project to have a net negative fiscal impact." Reduced spending levels, however, the study demonstrated, "would substantially lessen the negative impacts of the proposed project and contribute positively to an expanded economic base."

Institute activities included a taxation study of the bottomfish industry, a cost analysis of shore-based bottomfish processing, an alternative forest management practices study and a state permanent fund study.

The latter concluded that "growth may last only a decade before a decline in petroleum revenues will require that expenditures be financed increasingly from non-petroleum sources."

Center for Cross-Cultural Studies

The center completed a study of the 21 new Regional Educational Attendance Areas and reports on financing elementary and secondary education.

Analysis of effects of television on

rural Alaska is continuing, as is production of "culturally relevant" educational films.

Mineral Industry Research Laboratory

Researchers at the Usibelli Coal Laboratory, anticipating that local coal will have to be upgraded by washing and dehydration before exporting it, plan to experiment with the dehydration of Alaska coals.

A review of mining in Canada and Scandinavia describes the problems of northern mining, and a continuing study of the geology of the pipeline corridor has turned up a new mineral deposit partly on national interest lands in the arctic.

A recent tabulation indicates that gold deposits occur over almost the entire state "and have widespread importance."

Effects of placer mining on the environment are also being studied.

Arctic Environmental Information and Data Center

Information services have been expanded considerably during the past year, as has their utilization by consultants and state and federal agencies. The collaboration "has saved considerable time and money for the government, but more importantly, referral to the most expert sources available has assured greater breadth and accuracy of the efforts."

The center staff also prepared a socio-economic profile of the North

Slope Borough as part of the federal government's study of land use in the National Petroleum Reserve.

Developmental Programs and Projects

University staff continued to advise the Legislature and the Governor's Office of Telecommunications. Staff members helped develop "tele-conferencing" allowing legislators holding a hearing in Juneau to take testimony from other locations.

The university provided additional support to the musk ox project, which a year ago moved from Fairbanks to Unalakleet.

Naval Arctic Research Laboratory

While NARL has chiefly provided a base for transient scientists, continuing in-house projects are now being encouraged—partly through the initiation of a post-doctoral program.

Ice island research: Three manned or unmanned stations were placed on ice islands to study sea water, ice, snow and marine bioacoustics last spring.

Animal research: Study continues on species in the arctic, many of which were trapped near Barrow. Some now propagate readily in captivity; about 60 wolves have been born, raised and studied at the facility.

Outer Continental Shelf: Study has concentrated on the near-shore areas of the barrier island lagoons of the Beaufort Sea.



CORE-SAMPLING—At least one buried forest floor layer, probably representing debris deposited during the 1967 flood of the Fairbanks area, is visible in this balsam poplar forest core sample, which is one of thousands studied by the Forest Soils Laboratory as scientists examine nutrients in the soil.

(Forest Soils Laboratory photo)



WEST RIDGE—The major portion of research done at the UA is headquartered at West Ridge, a complex of modern buildings and laboratories up the hill from the

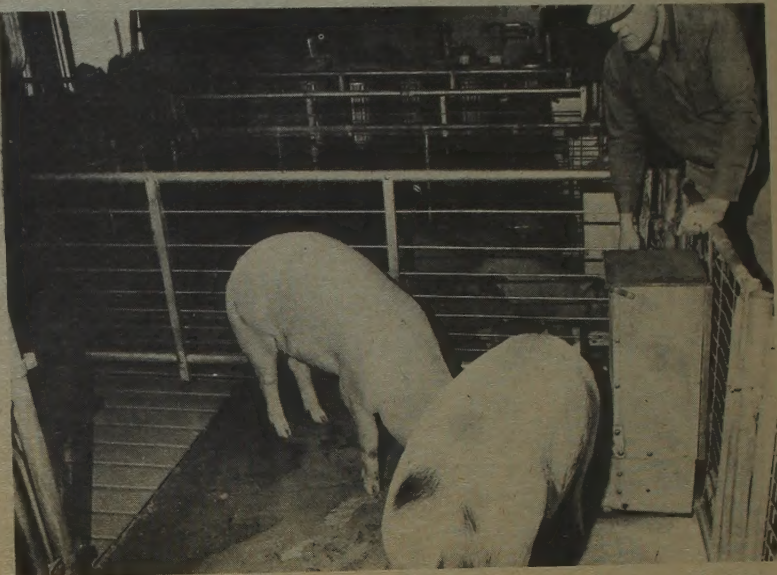
main university campus. From here researchers carry on investigations all around the state and in many parts of the world.

(Staff photo by Evan Bracken)



INSTALLATION UNDER ICE—At the Naval Arctic Research Laboratory in Barrow a diver, project technician Bob Clasby, prepares to install a box that has a mechanism that will measure the rate of carbon dioxide uptake by under-ice algae. The purpose of the project is to get an idea of the amount of productivity of algae.

(Institute of Marine Science photo)



COOPERATIVE STUDY—Involving the Agricultural Experiment Station, the Sea Grant program, a local swine producer and the fishing industry in Seward, a cooperative program is testing snow crab meal as a protein supplement for pigs. Scientists from different institutes often work together and with others on projects.

(UA photo by Sabra McCracken)



**G E O P H Y S I C A L
P R O J E C T S**—The largest of the 17 research units at the UA, the Geophysical Institute's budget is about 20 per cent of the total research budget. Experiments and investigations undertaken by the institute include rocket launching at Poker Flat, just north of Fairbanks, and studying the volcanoes of Alaska. With an international reputation, the institute attracts the best qualified scientists from around the world to come here to work with local scientists on various projects, including shooting barium into the atmosphere to do tests on the aurora borealis.

(Geophysical Institute photos)



In their fields, UAF's scientists are leaders

By ANDY WILLIAMS
Staff Writer

In the mid-1950s, Sidney Chapman of the University of Alaska conceived the idea for a cooperative effort by scientists around the world to study the arctic.

Chapman interested the National Academy of Sciences and colleagues at other universities. He headed a steering committee from which was born the International Geophysical Year of 1957-58.

Studies conducted that year provided a "quantum jump" forward in understanding of the magnetosphere, the magnetically-charged grid circling the earth, according to Larry Sweet, executive officer at the university's Geophysical Institute.

Instruments developed for the studies and information gathered opened new avenues of research that are being pursued to this day. Among the discoveries of that year was the Van Allen radiation belt by James Van Allen of the University of Iowa, Sweet said.

Today, another University of Alaska scientist—Dr. Juan Roederer, director of the Geophysical Institute—heads another international steering group coordinating an even larger study of the magnetosphere.

The new program, the International Magnetospheric Study, began in 1976 and runs through 1979, includes 26 nations and will spend up to \$400 million.

"The main purpose of the program is to study in a coordinated fashion the near-earth space environment based on a series of satellite stations and a network of ground stations all over the world," Roederer said.

He said the main thrust of the study is to "try to understand energy transference from the sun through the interplanetary gas—the solar wind—into the magnetosphere and from there into the upper atmosphere."

One of the end results of the journey of solar particles is the aurora borealis formed when they are deflected by the magnetosphere and spread out along

Frontiers of SCIENCE

the magnetic grid, he said.

Roederer said the University of Alaska maintains a key link in the line of ground stations and observatories extending across Alaska, Canada and Greenland. Data collected by the ground stations from satellites is transferred to the main computer bank in Boulder, Colo.

"All persons participating are flooded with data," he said, and international workshops are held at regular intervals to coordinate missions.

The International Magnetospheric Study is the largest cooperative effort presently involving the university but it is by no means the only one.

"Most of the research here is as the result of the unique geographic position," said Sweet. "The arctic is continuous and others will be doing the same research. Most have counterparts and work almost on a daily basis with people in other areas."

The university has a reciprocal agreement with the Institute of Biological Problems of the North in Magadan in eastern Siberia, has sent scientists there and has hosted Russian scientists in return, according to George West, director of the Biome Center at the university.

WORLD LEADER—From its start, the UA Geophysical Institute has been a leader in geophysical studies around the world. Its current director is leader of the International Magnetospheric Study, which was started in 1976 to coordinate a worldwide study. Involving 26 nations, the project may spend up to \$400 million.

(Staff photo by Eric Muehling)



VISIT TO A VOLCANO—A Feb. 20, 1976 trip to Mt. Augustine by Juergen Kienle, associate professor of geophysics at the UA Geophysical Institute, shows that

the summit of the Cook Inlet volcano, which had erupted in late January of that year, has a new lava dome intruding into the new crater.

(Geophysical Institute photo by Juergen Kienle)

In the Arctic



NAVAL ARCTIC LAB AT BARROW—An aerial view shows the complex of buildings that make up the Naval Arctic Research Laboratory seven miles south of Point Barrow. Its mission is to provide all facilities, logistics

and services to accomplish programs of basic and applied research in the arctic regions. The main laboratory and administration building is the H-shaped structure at center right. (NARL photo by L. Nakashima.)

NARL researchers have huge arctic lab at their fingertips

By ANDY WILLIAMS
Staff Writer

BARROW—In 1952 an Air Force pilot named Joseph O. Fletcher flying off the northern coast of Ellsmere Island in northeastern Canada noticed that a large island of ice had broken away from the ice shelf and was floating west in the Arctic Ocean across the top of North America.

It was several miles across and flat enough to land a plane. The Air Force named it Fletcher's Ice Island and established an observation camp there called T-3.

In 1961 the Naval Arctic Research Laboratory took over custody of T-3 for studies involving, among other things, submarine travel under the ice.

Through the years, it was involved in various projects as it moved in broad, clockwise sweeps across the Arctic Ocean. The projects included the Arctic Ice Dynamics Joint Experiment, a cooperative research program with Canada of the sea ice environment.

In 1973, however, the ice island was abandoned when it left the Beaufort Sea gyre and floated eastward, apparently destined to pop out into the north Atlantic Ocean and melt or ground itself near Banks Island.

T-3 is one of several ice islands scientists from NARL have manned, according to Gary Laursen, assistant director for science. Not surprisingly, ice is a major part of NARL's research.

"There is a whole series of ice studies," Laursen said. "Anything having to do with ice folding, reformation, deformation, crushing, what it does to the land, the saline properties of ice, working from drifting ice to ice stations."

But research at NARL covers the spectrum of scientific fields: oceanography, meteorology, climatology, hydroacoustics, geophysics, atmospheric physics and arctic biology.

Besides the occasional ice islands, NARL also maintains about 20 field camps ranging from Anaktuvuk Pass in the Brooks Range to Point Hope 160 miles west of Barrow and Peters Lake 312 miles east.

The camps are equipped with accommodations for up to 16 people and are supplied by the laboratory's fleet of eight airplanes. The laboratory also has two marine vessels, a fleet of smaller boats and a variety of wheel and track vehicles.

The main laboratory building, an H-shaped modular structure completed in 1968, has 43 laboratory spaces, a lecture hall and various specialized service rooms, including a library with 20,000 works of literature mostly about the arctic. Wood, metal and machine shops are capable of making specialized equipment needed for research.

In nearly 120 different projects last year research was con-

ducted in a multitude of areas.

Laursen, who first came to NARL in 1971 to work on a doctorate in mycology, a branch of botany dealing with fungi, is primarily interested in mushrooms. He has identified about 60 species of mushrooms on the North Slope.

But NARL scientists tend to wear more than one hat. Laursen is also experimenting with lighting at the Animal Research Facility, convinced that the high mortality of lemmings caged there is caused by the fluorescent lights.

NARL is heavily engaged in a national, interdisciplinary study of the outer continental shelf funded by the Bureau of Land Management and managed by the National Oceanic and Atmospheric Administration. Nearly 30 separate projects at NARL come under the Outer Continental Shelf study.

Much of the work on the Outer Continental Shelf is concentrated in the near-shore areas of the barrier island lagoons of the Beaufort Sea, areas proposed for oil and gas leasing. The proposed oil and gas leases in the Beaufort Sea also account for another study, funded by the Bureau of Land Management, of whales.

The whale study, funded for \$700,000 this year, is designed to provide information about the migration, feeding, breeding and other biological patterns of bowhead and gray whales.

Scientists have placed hydrophone buoys in the path of migrating whales and recorded their sounds.

Next spring they will begin tagging gray whales with small darts to allow them to follow their migration. Bowheads will not be tagged, however, because of the possible interference it might cause during the Eskimos' hunting season.

Scientists will study the leads through which the whales migrate, map them and record the salinity, depth and physical properties of the ice. They hope to study the vital and reproductive organs of whales taken by Eskimo hunters, take tissue samples and look at the flippers and baleen in an attempt to determine age.

The food whales eat will also come in for study, as well as the parasites they may pick up from feeding patterns.

The findings will go into a report that will help determine policy in outer continental shelf leasing. But knowledge gained from the studies may also influence decisions in the world debate over subsistence hunting by Alaska Eskimos of the bowhead whale.

The coming year promises to be a busy one for the staff at NARL. But another research project may be added. Last fall Fletcher's Ice Island slipped out of the current that was taking it toward Banks Island and is headed back toward the Beaufort Sea gyre. If it enters the gyre, as scientists expect it will, it should be due north of Point Barrow by next summer. And if it is, NARL plans to man it again.

Navy needs funds to sustain NARL

By ANDY WILLIAMS
Staff Writer

BARROW—On Nov. 18 the American flag was lowered from its staff by the command post at the Naval Arctic Research Laboratory for the long arctic night.

For 67 days the flag will remain furled until the sun first peaks above the far south horizon and a new flag is raised. After May 10, the dawn of the arctic summer day, the flag remains up until the sun next sets on Aug. 24.

Since 1947, when the laboratory was established by the Office of Naval Research on the shore of the Arctic Ocean seven miles south of Point Barrow, the flag has been the northernmost one on American soil.

Established to provide information about the Arctic environment useful to naval operations, the laboratory has become a full-fledged community, with its own power generation, water purification and sewage facilities, and provides support for investigations in all the sciences.

But despite NARL's unique position and capabilities, there is a possibility that when the flag is lowered next year, it will not be for the long arctic night, but for good.

The possibility of closing NARL completely is not great, according to Lt. Cmdr. Michael Brown, a graduate of Fairbanks High School who commands the naval station. More likely the Navy will reduce its level of support to cover only projects requested by the Navy, he said. Such a reduction would greatly impair the capability of the laboratory for research in all areas.

The problem is money. With a total budget of \$11.2 million for the laboratory this year, the Navy foots the bill for other government agencies that use its facilities.

"The Navy has been funding it totally and subsidizing it for other groups. Every federal agency is crunched for dollars and all we're asking for is help from the various agencies," Brown said.

Of 114 research projects conducted out of the laboratory last year, only 33 per cent were specifically for the Navy, according to Dr. Gary Laursen, NARL's assistant director for science. In previous years the Navy has sponsored up to 65 per cent of the projects, he said.

Laursen said other government agencies using NARL facilities include the Army, Air Force, Coast Guard, Federal Aviation Administration, Department of Agriculture, Bureau of Land Management, Fish and Wildlife, U.S. Geological Survey, National Parks Service, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Energy, Department of

Education and Welfare, National Science Foundation, Environmental Protection Agency, National Aeronautics and Space Administration plus state and local agencies.

NARL's facilities are also used for individual projects by many scientists who reimburse the laboratory for costs. But even after specific projects are paid for, the Navy is left holding "a \$6 million bag," said Brown.

"The Navy is not going to close the place up," he said, "but if we don't get help, we'll close it down to fit our own needs and I guess the rest of the scientific world will have to fend for themselves."

Laursen said the laboratory could not support the full range of scientific research it presently does if it were maintained at a level to support only Navy projects.

A sprawling complex of 120 buildings on 5,000 acres dedicated from the old Navy Petroleum Reserve No. 4, NARL is a self-contained city, heated by natural gas from its own reservoir and powered by a large generator and an extensive utilidor.

It has a full-time population of about 180, Laursen said, but its population can triple in the summer when projects are at a peak. Laursen said about 2,300 scientists, technicians, graduate students and other researchers used the place last year. About 140 persons are presently employed, he said.

The University of Alaska has managed NARL for the Navy since October 1976. The university in turn sub-contracts to Arctic Services Inc., a subsidiary of ITT, for operation and maintenance.

One reason for the Navy's decision not to bear the costs of the laboratory is a 140 per cent increase in operation and maintenance expenses in the last two years.

Laursen said the operation and maintenance budget this year was \$6.5 million, a ratio of about one to two for service to support.

"Antarctica has one-to-six to one-to-eight, so we feel we are extremely efficient in what we get from our research dollar," he said.

Nevertheless, he added, "Even if we get block funding, we're going to make changes to make it more cost effective."

Since last July when the Navy announced it would reduce funding for the laboratory, there has been a flurry of activity to find alternative sources.

Dr. John Kelley, director of NARL, indicated the challenge could result in an expanded role for the laboratory as a unique research base in the arctic.

"The Naval Arctic Research Laboratory should become the National Arctic Research Laboratory—a national facility available to all scientists," he wrote.

"The lead agency should be the National Science Foundation, partly because of the Foundation's counterpart experience in the Antarctic, mainly because it encompasses the expertise and wisdom to look to the future development in the American Arctic. Costs of operating the laboratory at Barrow might be shared among several federal agencies and the state of Alaska," Kelley wrote.

Frontiers of SCIENCE

Kelley, Laursen and other NARL officials met with officials from the National Science Foundation and interested government agencies in Washington earlier this month but no decisions were made regarding funding sources. Meanwhile, a meeting is scheduled in January to discuss plans to reduce the size.

Brown said other government agencies would have to include money in budgets now being prepared for fiscal 1980 or else "the Navy will be forced into the position where we will have to commence the draw-down."

"If some block funding from other agencies hasn't been available, by the end of FY '80 this place will be down to a size where it can only support Navy projects," he said.

Brown said he has received no indication from the Navy that there has been "any response at all" from other government agencies.

"It's disheartening," added Laursen.

"This is the only arctic research facility in the U.S. The loss of it would have a major impact on the scientific community," he said.



NARL BRASS—Dr. Gary Laursen, assistant director for science; Lt. Cmdr. Michael Brown, station commander, and

Dr. John Kelley, NARL director, are three of the top officials at the Naval Arctic Research Laboratory. (Staff photo by Andy Williams)

Arctic animals help scientists

By ANDY WILLIAMS
Staff Writer

BARROW—The Naval Arctic Research Laboratory maintains one of the best-stocked zoos of arctic animals in the world.

Actually it's not really a zoo. And the Animal Research Facility and the persons who come to observe its inhabitants have a different purpose than that of those at more typical zoos.

The ARF has about 230 animals of 13 different species. They include a polar bear, about 25 wolves, foxes, wolverines, marmots, ground hogs, weasels, three species of lemmings, a snowy owl, arctic ground squirrels and mice to feed the weasels and owl.

According to Dr. Gary Laursen, assistant director for science at the laboratory, animals have been a part of NARL practically since it opened in 1947. Local residents would bring in animals and they would be kept as pets but were

rarely used for research, he said.

The situation changed somewhat in 1973 when a writer published an article in an environmental magazine critical of the inadequate facilities for the animals, which "raised quite a ruckus," Laursen said.

The situation was saved by Dr. Arthur Callahan, program director for Medical and Dental Sciences at the Office of Naval Research, who had worked with wolves at the laboratory for a winter and has insured that funding was allocated for improved facilities and continued research at the ARF.

The facility, headed by resident veterinarian Dr. Mike Philo, includes a well-equipped surgery and equipment for a multitude of research projects. A specially designed chamber allows scientists to measure the response of animals to cold weather. Foxes have been taken down to minus 60 degrees

without triggering a shivering response.

Animals are kept in conditions approximating their natural environment and records are kept of their feeding, weight and genetic history so that scientists performing studies on them "start at step D instead of step A," Laursen said. Seventeen scientists conducted research at the ARF last year.

Laursen said lemmings constitute the basic food for foxes, weasels, owls and jaegers, and also feed wolves and grizzly bears. When the lemming population crashes, as it did two years ago, a decline in other populations follows. This year the lemming population is again at a high.

Laursen said only three species of arctic animals hibernate. Grizzlies den for the winter but their body temperatures only drop about 8 degrees, compared to a 30-degree drop for animals in true hibernation, he said.



APPREHENSIVE—This young snowy owl was found by a Barrow resident and brought in to the NARL Animal Research Facility.

(Staff photo by Andy Williams)

Who's Who

The key to UA success? The high-caliber minds

By CHARLIE SPENCER
Staff Writer

Where does one look to rate the research arm of the University of Alaska?

To the top, says Keith Mather, vice chancellor for research and advanced study.

"What makes a university is the caliber of the minds at the top."

So in building a research unit, the choice of personnel is critically paramount, Mather says.

"The starting point of any university is the quality of its faculty," he says. "And the most important single thing that a director has to do is pick the right individuals."

Some of the individuals who recently have been recognized for their work in UA research include:

- Syun Ichi Akasofu, Geophysical Institute, elected to the fellowship in the American Geophysical Union "for his outstanding research on the physics of the aurora, especially his identification of the auroral substorm as a basic process in the magnetosphere."
- David M. Hickok, director of the Arctic Environmental Information and Data Center, elected chairman of the Alaska Ecological Reserves Council;
- Kenelm Philip, Division of Life Sciences, spent two months obtaining butterfly and moth specimens in Northeast Siberia in the summer of 1978 at the invitation of the Institute of Biological Problems of the North, a U.S.-Soviet exchange program;
- Peter Morrison, former director of the Institute of Arctic Biology and now advisory scientific director, spent much of a sabbatical leave at the Scott Polar Research Institute, Cambridge;
- Robert Moore, director of the Institute of Marine Science, named editor-in-chief of the CRC Press Inc. "Handbook Series in Marine Science."

A graduate student recognized during

the past year is Edward A. McConnaughey, in the Institute of Marine Science. He received the "best student paper award" from the American Society of Limnology and Oceanography.

The list could go on. And it would tell of a university that has many top people scattered through the research area. They are a varied lot, coming to the university through many channels. And a close-up look at their personalities and work would tell much about the caliber of the institution.

Two examples: Vera A. Alexander and John Bligh.

Alexander came up through the UA system, earning her doctorate here in 1965. Eleven years later she was named acting dean of the College of Environmental Sciences.

Bligh is British. He came here only in 1977, to take over both the Institute of Arctic Biology and the Division of Life Sciences.

In some ways, they are a study in contrast. But they are both at the top.

Alexander, who also serves on the faculty of the Institute of Marine Science, is one of 10 people on the board of the National Academy of Ocean Sciences. She has become so involved on that board and other similar work that she has found herself spending about a quarter of her time out of state, she says.

A lot of it is academic politics, but that is an important part of her job.

And one "finds out a lot of what's going on" attending such meetings, she points out.

The politics portion of her life will wind down soon, however, as Alexander steps down from her position as dean. At the end of this year Juan Roederer, Geophysical Institute head, will move in to take his turn as dean in what has been made into a rotating chair.

Trained in fresh water study at

Wisconsin, Alexander originally came to Fairbanks in 1962 to study under marine scientist Peter Ray. She expanded her horizons to the study of oceanography.

Whereas graduates are now discouraged from remaining at the institution where they earn their degrees, Alexander said it was common then for a young Ph.D. to stay at the UA. So, after becoming the first woman to earn her doctorate at Fairbanks, she stayed.

Now, as a professor in the IMS, she helps handle the 45 graduate students presently in oceanography. "There's a lot of interest now in oceanography," she says.

That interest does not necessarily mean there is a lot of money for it, however, and that's a big thing Alexander the administrator has to worry about.

The UA rates "really very, very high" compared to other northern institutions around the world, she says. "But equipment- and technique-wise, we're no longer so far ahead . . . because of the financial strain."

She is not optimistic about federal funding for marine science loosening up soon, either. And she says she now has to spend an inordinant amount of time writing reports to justify the money she does receive, instead of thinking up new proposals.

"It's getting to be quite a struggle," she said.

Juggling her time has been a struggle, too, she says. Stuffed into the corner of her laboratory, she has stayed physically close to the "something like \$350,000 worth of research going on in this lab."

Her projects stretch from a study of oil tanker ballast water discharge at Valdez to a study at Toolik Lake north of the Brooks Range.

But she has not spent as much time in the lab as she would like. "Good assistants" have carried on well in her absence, she says.

Bligh is also faced with the problem of allocating time between administration and faculty duties.

Having spent 21 years at Cambridge, Bligh arrived here 14 months ago to replace George West, acting director of the Institute of Arctic Biology. The position was to be combined with the directorship of the Division of Life Sciences.

"They phoned me up, actually, and asked me if I'd like to put my name forward," he said.

He had not previously applied. He, in fact, was situated in "a very comfortable appointment" in research at Cambridge.

But a call from another institution halfway around the world would not be out of the ordinary. Explains Bligh, in the study of "life in the environment the leading workers throughout the world know each other quite well."

Bligh, who recently was appointed to the International Union of Physiological Sciences on the International Scientific Committee for Antarctic Research, was interviewed and hired.

Because he is comparatively new to the UA, Bligh was hesitant about being interviewed—in favor of those, like Alexander, who had been here longer. But when he consented, he offered some interesting comparisons.

For example, in his work in animal physiology as a researcher at Cambridge he was separated from the rest of the university.

It used to be the same here, he notes. The research sections had been viewed as ivory towers, he says, separate from the rest of the university they accompanied. The researchers stuck to research; the teachers by and large stayed in the classroom.

But in the last few years at Fairbanks the researcher has moved into the classroom and the teacher has had greater access to the lab. Virtually all of the people in life sciences and arctic biology now cross over to some extent, Bligh said.

He likes this system. Besides enriching each individual in the system, it helps draw top people.

First, the international reputation of

Frontiers of

SCIENCE

the research institute at Fairbanks attracts teachers who know they can also work in a top research group. Researchers know they will have more flexibility to adapt to one of the inherent problems in research.

Explains Bligh, no matter how good a researcher is at planning and writing proposals for grants, he can hit a dry period when hoped-for money is not forthcoming. Even for a person who is mainly a researcher, the teaching outlet can come in handy.

Now Bligh has moved into many areas. "I refuse to be simply an administrator."

He has used his position as head of life sciences to go back into the classroom. This year he personally gave introductory lectures, hoping to immediately provide students with a broad picture of what they were getting into.

He is also continuing his own research, concentrating on the reactions of the mammal's brain to environmental temperature change.

Like Alexander, Bligh has top assistance. Colin Smith, his chief technical assistant, accompanied Bligh from Cambridge. Smith now performs most of the more routine experiments in the work, while Bligh performs the more complicated surgery.

Bligh says it took him a year to be able to analyze the Fairbanks facility and to rate it. Like any scientist, he notes, he was a specialist. "Here we have this tremendous spectrum."

Now, looking at the individual quality, personal integrity and willingness of researchers to dive into teaching, "I really am tremendously impressed."

There are two important reasons Bligh came to Fairbanks. One, he explains, is that Alaska is one of the last places on earth where the interaction of flora and fauna can be observed in the relative absence of man's disturbances. And in addition to the life sciences, it is a natural location for the study of geophysics.

Second, because Alaska is loaded with resources, it is in line for more intrusion by humans.

"We don't see it as a battle in which we want to keep man at bay," says Bligh. The challenge to the scientist, he says, is to learn enough to make good recommendations for man's actions in the Alaskan environment.

Like Alexander, Bligh the administrator must also face a funding crunch.

Modern scientists, "the employees of society," universally depend mostly on public money to pay for research, Bligh says. But society pays differently here than in Britain.

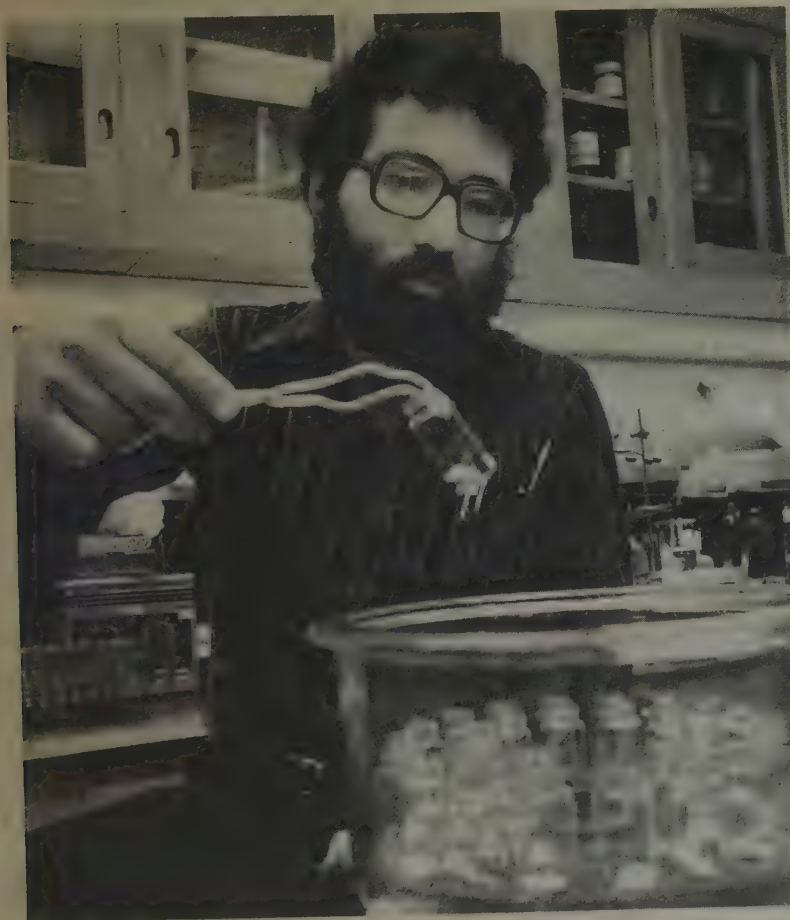
In the U.S. most of the money comes from the many federal agencies that have money made available each year. The British government turns money over to a central group set up by the scientific community.

Research under that system has been better insulated from the whims of politics, Bligh says.

Also, here the emphasis is on the proposal the scientist writes up for a project. "In Britain we still tend to invest in proven researchers" rather than in projects, Bligh says.

Bligh likes the emphasis on the individual. "A really good researcher is nearer the artist. He does his best when he is allowed to follow his own instincts."

Here, he says, "the point is that I have to learn how to apply for grants."



DUTIES OF A GRAD STUDENT—Graduate students like Peter Tallas, who is inspecting glucose as part of a nutrition study of blood, have the opportunity to work with top scientists at the University of Alaska. Many UA Ph.Ds have done pioneering research and are world leaders in their fields.

(Staff photo by Evan Bracken)



TALENT FROM THE TOP—Eugene Westcott, geophysics professor, Robert Merritt, electrical engineering professor, and Syun Ichi Akasofu, geophysics professor, install equipment to measure electrical currents induced in the trans-Alaska pipeline by the

aurora borealis. Akasofu was recently elected to a fellowship in the American Geophysical Union "for his outstanding research on the physics of the aurora, especially his identification of the auroral substorm as a basic process in the magnetosphere." (Geophysical Institute photo)

Behind every scientist is a grad student

By DAN JOLING
Staff Writer

Behind most research scientists at the University of Alaska, there's probably a graduate student assisting.

About two-thirds of the 305 graduate students enrolled at the school are in the sciences, and an important part of their education is learning how to research.

"That's what a lot of graduate study is all about," according to Brina Kessel, administrative associate for academic programs.

Researchers receive assistance and new data, and students learn how to compose a proposal, solve a problem and write a thesis. It works out well for both sides.

Life for a graduate student begins with a certain amount of course work. To earn the right to be called a doctor, Kessel said, it's necessary to acquire a certain amount of knowledge of the field.

Somewhere near the middle of the student's term at the school he takes a comprehensive examination, often both written and oral, over a host of topics in his field.

"I'm more scared of that than the thesis," said Peter Tallas, a doctoral candidate studying nutrition.

When it comes down to writing a thesis, it's not a simple matter of choosing a topic and plunging ahead on research.

Topics in many cases are more heavily influenced by what a student's adviser has a grant for.

"There's real strong direction from the adviser," said Susan Jarrell, a master's degree candidate in biology. "You have some choice, but it depends pretty much on what he has money to do."

Without a grant, much of the research considered appropriate for a degree would be out of the price range of students.

"The professors are in the position of getting grant money and you're not," Jarrell said.

It's not as bad as it seems, though.

"What you always wanted to do may be unrealistic," Jarrell said.

Different schools have different emphases, and the graduate can match his own interests with the interests of the professors at a certain school, Tallas said.

The most important part is learning how to do the research, and if a student doesn't get to do what he wants, he can always pursue it after he graduates.

When the time comes to submit a proposal, university instructors require it to be written as if the student were applying for a grant, minus a budget.

Many graduates have remained in the state to pursue careers. Of the 96 successful doctoral candidates, more than a third live in the state, with 20 at the University of Alaska. Nine more work for state or federal agencies and six are in business in the state.

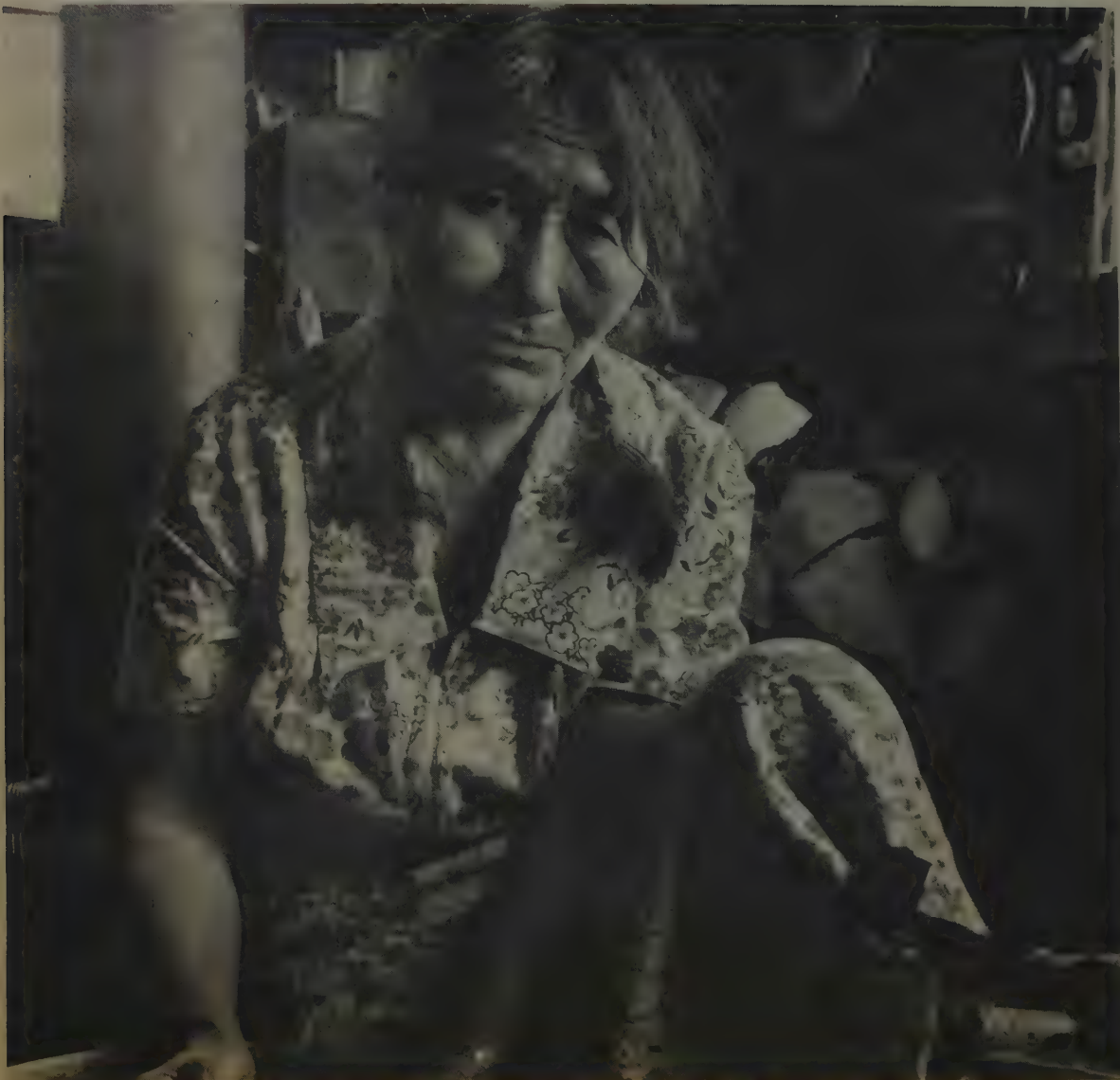
About 20 of the doctors are out of the United States, mostly foreign students who have returned to their home countries.

In theory, Kessel said, masters degrees are to take one year, but those in the sciences with a thesis requirement generally take at least two.

Doctoral programs require at least three years, with more time the rule rather than the exception.

There are time limits. No course work more than 10 years old can be used for a doctorate, and none more than seven years for a master's degree. Kessel said if a student's work drags on, his faculty committee could give him the boot.

"They aren't looking for dilettantes," Kessel said.



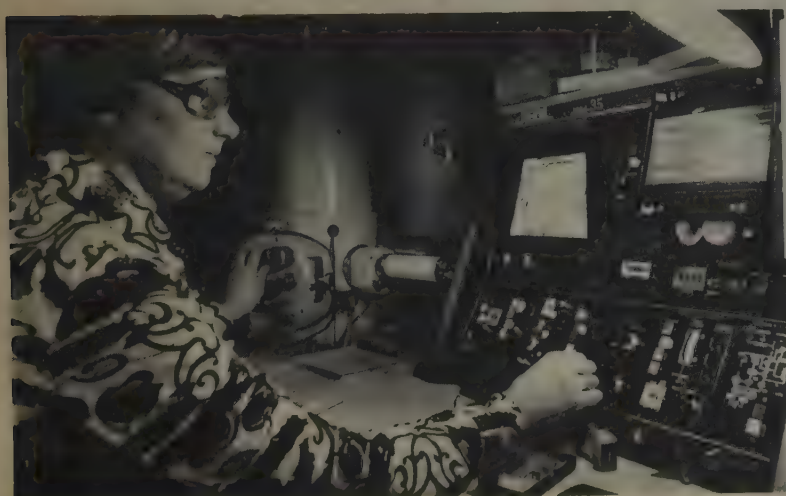
FILMMAKING—Most of the work done by researchers in the Center for Cross-Cultural Studies involves gathering information and publishing reports on a variety of subjects and, in this case, filmmaking. "From the First People," a community-produced film in Shungnak, includes resident Pansy Berry as one of its subjects. Publications include "Cross-Cultural Issues in Alaskan Education," Law and Alaska Native Education" and "School Finance in Alaska."

(Alex Harris photo)



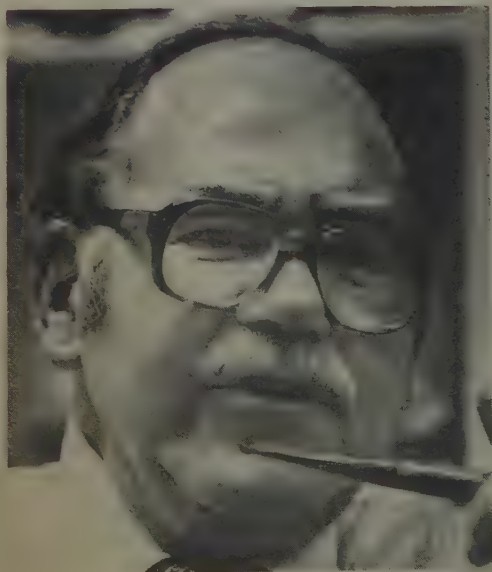
RESEARCH INSIDE AND OUT—Institute of Water Resources technician Winston Hobgood measures water quality parameters in Delta Clearwater Creek and Mary Ann Borchert, electron microscopist, prepares the scanning electron microscope at the Geophysical Institute for viewing a salmon fish gill.

(Institute of Water Resources photo)



MONITORING REINDEER—Senior technician Patrick Wheat and Ph.D. candidate Peter Tallas collect expired air from two reindeer that had been injected with radioactive glucose. The radioactivity in the collected air is checked to estimate glucose oxidation in relation to the energy expended by the reindeer in this basic study on the nutrition of Arctic animals. Oxidation estimations of carbohydrates, fats and proteins are required for these studies.

(Institute of Arctic Biology photo)



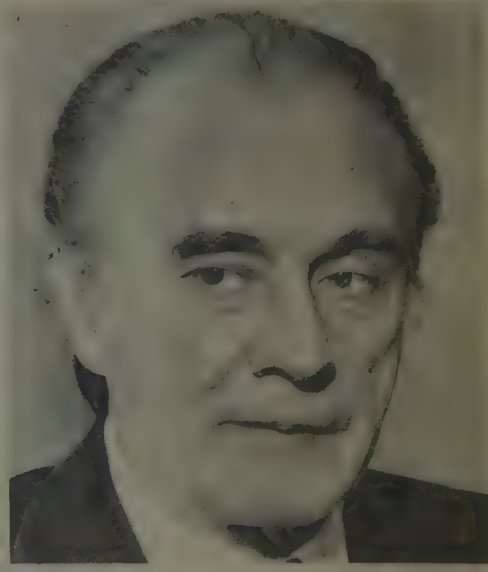
KEITH MATHER
Vice chancellor
for research
and advanced study

"Washington, D.C. sees us as a university for science and research and engineering. I don't think Washington even knows we have an excellent library and museum."



FOSTER DIEBOLD
President

"Geophysical and geological work get a lot of press. But some people involved in English have received awards on a national level, and I'd place them at a par with any other university our size, or better."



HOWARD CUTLER
Fairbanks chancellor

"My feeling is that any so-called conflict is an internal difference that is what helps make the university go around. The university is full of dilemmas that really are what we flourish on."

Arts versus science

UA administrators aim for the best of both worlds

By CAROL MURKOWSKI
Staff Writer

The ancient battle of academics, in which the arts and sciences fight it out for superiority, doesn't seem to be bothering anyone at the University of Alaska much; they're trying to aim for the best of both worlds.

"I don't think there's any conflict here between arts and sciences," President Foster Diebold said. "Any education has to be made up of a liberal sprinkling of both."

The problem the university faces now, UA officials agree, is how to convince outside agencies that they want a balanced program.

"Just because we're the northernmost university in the United States, we tend to get grants and contracts for research in the Arctic," said Keith Mather, vice chancellor for research and advanced study.

"This sort of thing happens a lot because we're just here on the spot. There's no question that Washington, D.C., sees us as a university for science and research and engineering. I don't think Washington even knows we have an excellent library and museum."

"Some of the things just get much more notoriety," Diebold added.

"There's so much activity going on with geophysical and geological work, for example, and they get a lot of press. But some of the people involved in our English departments have received awards on a national level, and I'd place them at a par with any other university our size, or better."

Diebold said the amount of scientific research money attracted to the university tends to draw attention, but should not overshadow the rest of the university.

"We've got a \$140 million total budget, and over \$30 million of that is in research grants and contracts," he said. "That's a lot of money, but there's still a heck of a lot more going on here than just research."

Diebold used the Anchorage campus as an example of the statewide system's balance. The university there consists of a College of Arts and Science, Center of Criminal Justice, Center for Alcoholism and Addiction Studies, and professional schools in nursing, education, business administration and engineering.

"For a growing university center, that's a pretty nice balance," Diebold said. "When you show that kind of emerging program, along with the other liberal arts and scientific research programs on the Fairbanks campus, you look pretty good."

The competition between departments for research money or equipment also keeps each department on its toes, Fairbanks chancellor Howard Cutler said.

"My feeling is that any so-called conflict is an internal difference that is what helps make the university go around," he said. "The university is full of dilemmas and different points-of-view that really are what we flourish on. The very process of investigation challenges the status quo at all times."

Cutler said he believed most University personnel in research and instruction take an active interest in the other function.

As an example, he pointed to a recent series of public faculty lectures sponsored by the College of Environmental Science and geared to the average student. Special discussions on the brain, upcoming research projects and other topics are discussed in

laymen's terms to attract listeners who may not be specialists in the field.

Another topic discussed at the forum was the amount and type of scientific work being done at the UA. The topic of funding, equipment and facilities for the arts versus the sciences is still a favorite topic of discussion, university officials agreed, but not just at the University of Alaska.

"I think it's a continuing exercise in the discipline and philosophy of the faculty, not just in this university, but all over the world," Mather said. "It comes up at informal and formal discussions constantly—how much money goes to the arts? How much to science? It invariably comes back to what sources of funding you have and what they want to give you."

Mather suggested that the problem has been solved best by large private universities such as Oxford and Cambridge in England and Harvard and Yale in the U.S. With large private endowments, such schools depend less on government money and can help support studies that might not receive attention from the federal or state government, Mather said.



ART COMPATIBLE WITH SCIENCE—Ron Senungetuk, design professor in the UA art department, works closely with student Sharon Carter on a project that at times requires the tools of science. The arts mesh closely with the sciences at the university as each takes advantage of developments made by the other. Leading university officials say they don't see a big conflict on campus between the two.

(Staff photo by Eric Muehling)



APPLIED RESEARCH—Archeologists excavate sites along the trans-Alaska pipeline where remains of prehistoric man were found. Funded by Alyeska, archeology investigations along the pipeline route were coordinated by the Institute of Arctic Biology. This type of

work is applied research as opposed to basic, which usually involves a global question. Applied research generally involves a contract for specific work. Basic research may generate more questions than answers.

(Institute of Arctic Biology photo)

With enough funding, scientists say there's no limit to what they can do

By **DERMOT COLE**
Staff Writer

Optimistic predictions about the future of the state of Alaska give rise to equally optimistic predictions about the future of research programs at the University of Alaska.

"There's just no limit to what one might do with research in Alaska except in regard to dollars," says Keith Mather, vice chancellor for research and advanced study.

Oil and gas development on the Outer Continental Shelf, hydroelectric power projects, mining and the development of Alaska's fishing resources are among the more obvious areas where the grounds for research are fertile.

"Of all the areas at the university, it probably has a very strong future because Alaska is still relatively underdeveloped. And because so many of its scientific and technological problems have not been solved, the need is therefore greater and I believe that the response will be greater," he said.

To continue to grow, though, the research programs need money and lots of it. Like everyone else in the state, the UA is eagerly eyeing the oil dollars flowing from Alaska's North Slope.

Research now accounts for about one-third of the UA's statewide budget.

In recent years, the amount of money fed into the school's research activities has climbed steadily, but to do the work that needs to be done for the future, the amount kicked in by the state should be increased, Mather contends.

Over the past few years increases in money from the state have not kept pace with increases from other sources, he said.

Therefore, he says, there's a need to get the message out that investing one state dollar in research brings back four dollars.

"Over the years more than \$200 million of federal money has come to the state of Alaska as a result of research proposals written by the faculty of the University of Alaska," he said.

There's also the payoff that many scientists contend is always obtained from scientific research—knowledge.

Contributions to scientific knowledge of the polar

regions have emanated from the Fairbanks campus over the full range of the sciences—from geophysics to oceanography.

Developing satellite communication links between the urban areas and villages first helped with UA-related projects for medical treatment in the early 1970s. Some of the same techniques put to use then are being used now to bring live television to the homes of Alaskans from the Lower 48.

The Chronicle of Higher Education recently quoted a report by a National Science Foundation board which estimated "that one-third of the growth in the national income during the post-war period flowed from advances in knowledge, particularly in the sciences and the new technologies to which they gave rise."

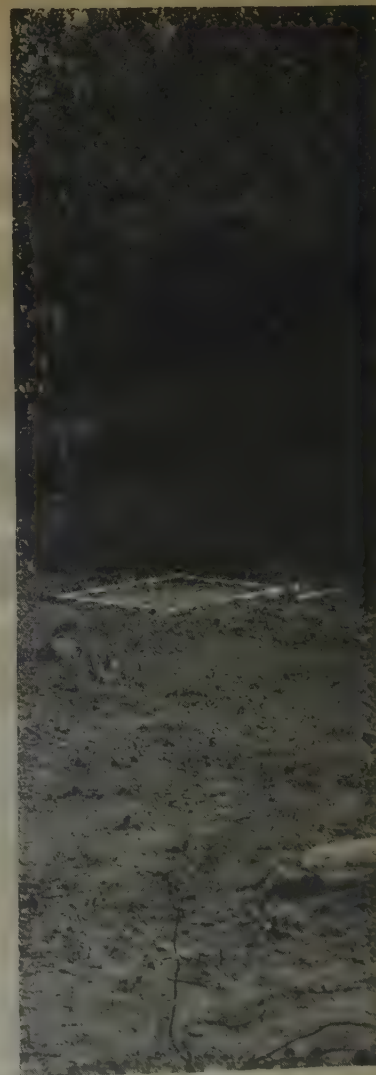
Asked which field he believes should demand top priority at the UA in the coming years, Mather said more effort should be put into the biological and environmental sciences because they haven't been studied as extensively as the physical sciences in Alaska.

The university, as it has learned over the past two years of administrative turmoil, also must deal with the political environment established by the state and federal governments.

Presently, there are five crucial issues affecting Arctic research at the university, Mather writes in the forward to a UA research report to be released next month.

They are:

- A proposal by the Office of Naval Research to curtail or close the Naval Arctic Research Laboratory at Barrow;
- "Awkward restraints" by the state on the school's handling of research money;
- A lack of laboratory, office, library and storage space on the West Ridge where many research facilities are housed;
- A cooperative approach to research with private industry to end accusations that the UA competes with private enterprise for federal grants and contracts;
- And the need to create an Alaskan Academy of Sciences to advise the newly established Council on Science and Technology.



SOIL TEST—Data obtained from basic research involving these high productivity alder in the Tanana River floodplain could easily be used in applied research.

(Forest Soils Laboratory photo)

Who cares?

'Spin-offs' help society, scientists say

By SUSAN FISHER
Staff Writer

Millions upon millions of dollars are spent each year on scientific research, but what do taxpayers get for that money? How does research relate to everyday life, if at all?

Research officials at the University of Alaska explain that some research projects appear more applicable than others, and not all can be assessed in terms of direct or immediate benefits.

Dr. Juan Roederer, director of the Geophysical Institute, outlines the difference between "basic" research and "applied" research.

Applied research generally involves a contract for specific work, to address a specific question.

Basic research may address a "global" question. It may or may not result in an answer, and in fact "may generate more questions than answers."

Roederer gives this example:

An applied research project may involve firing a rocket into the aurora specifically to measure and identify particles. A basic research project might address the question "Why is there an aurora?"

Roederer observes that applied research is generally more acceptable because it focuses on a specific question and leads to a more concrete result or answer.

But basic research, far more vague in nature, is beneficial, too.

"Often a negative answer is as valuable as a positive," says Roederer.

For instance, during the massive space and aeronautics research programs of the 1960s, much of the technological "spin-off" results were incorporated into practical use.

"You cannot say that by studying this lunar rock I have developed this computer. But indirectly, yes, certainly. By injecting money in this enormous space and lunar program and space research, the spin-off has been incredible," he adds.

Take television, for example. Before space research, television sets were far more crude and basic than today's sets. Roederer says about 80 per cent of the improvements in television transmission and reception are related to that research.

By probing space, new instruments, new techniques, new technology evolved, and while at the time, the practical application to everyday living was not readily visible, it has become so.

"There was no way of predicting (benefits of space research) ... I get so mad at the present trend, especially in Congress. They apply so much pressure on the National Science Foundation to fund more applied programs—only those that will mean something to the man on the street. Ridiculous," Roederer says.

The University of Alaska is the only university to have its own rocket range. That range specifically serves to study the aurora.

Why is auroral study necessary?

Besides being a phenomenon that naturally attracts curiosity, the aurora interrupts communications. That is important from a national defense standpoint.

And there is speculation that the northern lights may in some way relate directly to weather and atmospheric conditions.

In other institutes within the university, arctic and polar study have refined such information as how to properly dress, build and live in the far North.

Research into fishing and marine sciences are valuable to fishermen. How to improve catches of salmon, shrimp and crabs, for instance, is important to fishermen for livelihood, the state from an economy standpoint, and the public as consumers.

How oil spills affect marine life is important for the same reasons.

Frontiers of SCIENCE

Other research might zero in on why salmon crops are dwindling.

The Sea Grant program, for example, takes research information and relates it to junior high students. Alaskan students are learning about the state's resources through a regular publication.

Research relating to developing a bottomfishing industry is important to the state's economy because it could open new avenues of food supplies and income.

Similarly, agriculture is of keen interest from an economic standpoint.

Success in Alaskan agriculture eventually could mean lower food prices and greater selection of fresh produce for Alaskans, who now depend heavily on imported foods.

Some research is more specific and localized.

Fairbanks, for instance, is subject to the ice fog phenomenon, caused by temperature inversion. Some ongoing research projects are addressing what causes ice fog and ways to reduce or control it.

Another project that focuses on a more specific population are those dealing with Native subsistence hunting and fishing, relative to wildlife populations, endangered species, animal diseases and natural habitats, among others.

Still other examples of research benefits are:

- Bolstering tourism, the state's second-largest industry, by developing park and recreation areas, for instance. Increased tourism means more state revenue and jobs.

- Developing solar energy and hot-water heating as energy alternatives and in terms of conservation. How Alaskans heat their homes and at what price will become increasingly important.

- Finding out what causes—and how to predict—earthquakes and volcanic eruptions can eventually lead to good, advanced warning signals and reduce losses of lives, property and resources.

- Forestry studies lead to information valuable to timber industry, firefighting techniques, renewing vegetation and more.

- Developing new businesses by investigating interest and marketing possibilities for resources not currently tapped to a great extent, such as squid and octopus, considered delicacies by Orientals.

- Studying why Alaskans have an inordinately high rate of violent deaths (accidents, suicides, homicides) and alcoholism compared to other states.

Research information and data is a valuable reference to elected public officials, military personnel, social service agencies, governmental agencies, teachers, private industry and others. It also is shared with other universities and scientists in other countries.



KUSKOKWIM RIVER GARDEN—Gardeners at Aniak work in the carrot patch of a truck garden in a project conducted by the Agricultural Experiment Station to determine for the Kuskokwim Native Association the

economic feasibility of producing and marketing vegetables there. Crop research in different areas of Alaska is important in developing farming areas.

(Agricultural Experiment Station photo)

Sponsored and written by the Geophysical
Institute of the University of Alaska

Community Science Forum

Speculation

The last time I speculated extensively on something in this column—a guess about how Naptowne, Alaska, was first named—many of us learned a bit of Alaskan history as various readers corresponded to set the facts straight. Perhaps this experience serves as a warning not to speculate too much here.

Still, a request to prepare a special column in honor of this Weekender's emphasis on science tempts me into speculation again.

Why is a science-related column of this type being carried by 13 newspapers in Alaska and Canada? Could it be that the editors of these newspapers know that their readership is made up of people who are more interested in and aware of their surroundings than many who live farther south? Sometimes this awareness exists because many northerners wrest their living from the land, the sea or the air and consequently must astutely observe to succeed and sometimes even to survive.

Not everyone in Alaska or the Yukon earns a living from outdoor activities such as fishing, mining, transportation, timbering or farming. However, many employed in other areas often take vacations that involve pitting themselves against rivers, mountains, mosquitos or other elements of the north. So it seems that

most of us here have a reason to be interested in the earth and how it functions. Those who are motivated by their own interest to observe their surroundings tend to be good observers.

I first became aware of how expert Alaskans and Yukoners can be as observers of natural events when investigating major earthquakes that occurred in 1958 near Huslia and Yakutat. A great deal of the information we assembled actually came from bush pilots, villagers, miners, fishermen and trappers who felt the earthquakes or saw their effects. As a supposedly trained scientist, I was, in this era, humbled more than once by having my observational capabilities outclassed by a person without formal education who stood beside me and saw more than I.

But back to the column—many of the articles that appear here are in response to comments or questions resulting from someone else's experience or observation. Many of the 270 articles that have been written since this column's beginning in the Daily News-Miner in March 1976 were prepared in consequence of reader interest. The variety of topics covered also has been influenced by the interests of the more than thirty persons who have contributed articles.

Here at the University of Alaska there is a truly remarkable and easily accessible wealth of scientific expertise in almost every subject dealing with northern regions. That asset is used again and again, often without acknowledgment, in preparing these columns.

But the specialists have no corner on science in Alaska. It seems that the majority of northerners are interested in expanding their knowledge obtained by study and practice; according to Webster, that is the definition of science. We often forget in this day of sophistication wherein scientists are usually pictured beside fancy, complicated instruments, that much of science is accomplished by using the eyes, ears and fingers for observational tools and the human brain as an interpreting computer. Everyone has the capability to observe and interpret what goes on around him. One gets the impression that northerners are more interested in employing these capabilities than most.

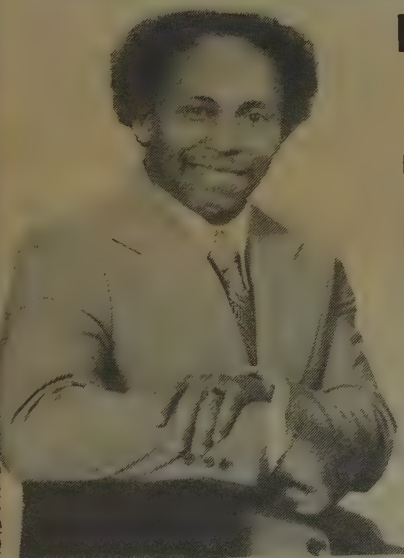
Along this line, one of my favored stories is about the observation and interpretation made in 1969 by an elderly Athabascan woman at Dot Lake. She watched a barium cloud released from a rocket that had been launched from the University's Poker Flat rocket range near Fairbanks. High in the sky over her head, she saw the bright multi-colored barium release cloud suddenly appear, expand circularly and then fade away.

"I know what that was," she said, "It was God opening up a hole from heaven so he could look down from the sky and see the people here on earth. He didn't like what he saw, so he closed the hole back up again."

One may quibble with the woman's conclusion, but anyone who has seen a barium release can easily understand why she might interpret it that way.

Interpretation and speculations are often wrong, but if one is to make progress in understanding, it usually is necessary to speculate a bit. Hopefully, this column provides the reader with the foundation material upon which to form his own conclusions and speculations.—Neil Davis

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THE

IMAGE

GAVORA MALL
Fairbanks, Alaska

TVCC shyness seminars to repeat in spring term

Dawn Mach is not the sort of person you'd immediately label as "shy."

She's a professional planner and often has to present ideas for controversial building projects to governmental bodies, and she does so without blushing or stuttering or calling in sick at the last minute. But she considers herself shy, and when Tanana Valley Community College recently offered a workshop in shyness called "Letting your Light Shine," she enrolled.

She was, she admits, a little apprehensive when she first walked into the room of more than a dozen people. "But you immediately have something in common with them," she says, "because you all consider yourselves shy."

Counselor Nancy Hidden was leading the workshop, which began with consideration of "the places and situations where you're shy," Mach said. "Afterwards we had to keep a shyness journal of where during the week you felt the kind of things that we usually call shyness. You also write down what you think you should have done."

For her, the journal-keeping was instructive. She found that she felt shy much less frequently than she assumed she did. "You may find that your problem is not as great as you thought it was." She was able to realize that only specific situations evoked the shyness response in her.

Mach also learned that there are different kinds of shyness: public

shyness, what we usually notice, in which the person gives outward evidence of his feelings; and private shyness, in which a person seems outwardly confident but is inwardly in the same emotional state as the publicly shy individual.

"Also, some people had been shy as children and grow out of it, and some people grow into being shy," Mach said.

The workshop, which will be repeated during spring semester, is arranged so that participants will discover their own personal versions of shyness before they learn theories about it. Fantasies, drawing, free association and other techniques lead the participants into realizing their individual forms of shyness—from the boisterous person who suffers agonies of "I should have" after every encounter to the quiet person who never risks participating in a conversation—and hints are offered for increasing confidence in the difficult areas.

"Eighty per cent of all people are shy at least some of the time," Hidden comments. "Forty per cent of us are very shy. And there's a reason for that—the structure of our society, which is very competitive. We're all afraid of failing, of being rejected."

For information about the repeat offering of this workshop, contact TVCC at 479-7880—and don't be shy about it.

Jo Anne Wold

Cookies



FOR SOME REASON food has been on my mind lately, not the sustenance kind, but rich, heavy foods, highly flavored and sweet—the desserts that come with the season.

Years ago as a child I shunned both fruit cake and mince meat pie, and now, when one can least afford the intake, that is what I want—fruitcake jeweled with candied fruits and soaked with brandy, and mince meat pie three inches thick, glistening with moisture and topped with vanilla ice cream.

Not only that, while some people have visions of sugar plums dancing in their head, I dream of cookies. Cookies, a seemingly innocent repast, are not the indulgence of cake and pie, but, oh my, how they add up, and one leads to one more.

When Mother baked Christmas cookies, every available surface in the kitchen—including the counter, the table, the sewing cabinet, the chairs and the top of the refrigerator—was covered with cookies. They were on cooling racks, on platters, on trays, on waxed paper and in boxes for gift giving.

SOME COOKIES WERE FROSTED, although nothing elaborate, the way some people do—we were more interested in flavor than looks. All our resources went into the ingredients—nothing but the best of everything.

Some cookies were rolled in powdered sugar (the Russian tea cakes); others were plain. Some had raisins; some had raisins and nuts; others did not. Some were deep-fried like the Fattigmanns; other were baked and produced the most tantalizing aromas throughout the house. Let it be known that baked, fried, frosted or plain, all these cookies had one thing in common—they were all made with butter—a cardinal rule at our house then and now.

Our all-time favorite was a crispy delight we dubbed the Joy to the World Christmas Cookie. It is chewy, almost like a macaroon, but with the crispiness only rice krispies, oatmeal and coconut can give. Think of the nourishment! Think of the flavor!

ONE OF MY DOWNFALLS this time of the year (and I have several—catalogs and cookies are two I dare mention) is gazing at the glossy color pictures of Christmas cookies in cookbooks and in Christmas magazines. They are truly cookies made in heaven because every last one is perfect, not a misshapen nor burned one to be found. The round ones are round where a cookie should be round, and the bars are as square as a bar should be square. And, in addition, the puffy cookies are puffy, and flat cookies are flat, and the frosting swirls in an artful way, and the chopped nut topping is neither too little nor too much.

These cookie models that we see arranged on plates and platters in a delightful way have nothing to do with reality. Reality is a slightly bent-out-of-shape pinwheel snatched from a smoking cookie tin, while fashion cookies hang on velvet ribbons, or flat on cotton clouds, or turn up on priceless Spode or sterling silver trays. Not a single crumb nor a broken cookie is to be seen. How can that be?

TO READ THE NAMES of these cookies—the Toffee Toppers, the Java Crunch, the Double Crunchers, the Chocolate Munchers, the Maple-Scotch Snaps, the Orange-Oatmeal Chews, the Cherry Pom Poms, the Coconut Cherry Drops, the Butter Pecan Crunchers and the Chocality Poppers (a rich blend of melted chocolate, buttery batter mixed with marshmallows and poured into a baking pan with pop corn and salted nuts)—is to send you straight into the kitchen.

To run your eyes over the ingredients, to take in the order of preparation, well, it is satisfying enough to make you think you have already whipped up a batch of Pebble Top Chocolate Bars, or Fruitaroons with fruit cocktail and coconut and maraschino cherries and Date Jewel Drops and Apricot Chews (with finely cut dried apricots, crushed pineapple and lemon juice—imagine). There are Lemon Lassies, Butterscotch Oaties with butterscotch chips and rolled oats and coconut, Chewy Cranberry Gingers, Butteroons, Cherry Fancy, By Cracky Bars, spicy Minnesota Harvest Bars with pumpkin and dates, Penuche Bars and Cashew Caramel Yummies. The only thing, the cookies evaporate with your imagination and the cookie jar is empty.

SO DREAM ON of Lemon Mardi Gras Squares, Jamerangs (a vanilla flavored cookie topped with apricot preserves and cinnamon flavored meringue), Almond-Coconut Twinkles, Frosted Praline Cookies, Long Ago Lemon Cookies and Lemon Pillows filled with lemon-flavored cottage cheese, or Lemon Larks—lemon peel and meringue—Molasses Butter Crescents, dredged in confectioner's sugar, Malted Mocha Dreams, Peachadillies and Brazilian Jubilee Cookies, and hope the cookbook never ends.

What of Walnut Walkaways, Oriental Tea Treats, Apricot Jewels, Macaroonies concocted of orange peel and coconut and chocolate chips, Spicy Spritz, Hawaiian Moon Drops iced in lemon, Fudge Nougats, Nut Nibblers and Jam Strip Cheesers, a nice little rolled cookie with cream cheese in it, topped with a dollop of jam. There are Pink Meringue Clouds, Sweet Pastry Pockets and Norwegian Almond Bars filled with mashed potatoes. Wait, don't turn up your nose—the mashed potatoes are flavored with almond paste, cinnamon and cardamom. OK?

And if you think we have exhausted our supply of cookies, you are wrong. We now come to dessert cookies. When is a cookie not a cookie, but a dessert? When you make it bigger and give it a flair. Brownies cut in larger than life sizes and topped with ice cream become a dessert. Thin butter cookies layered with brandy-flavored whipped cream garnished with chopped nuts and maraschino cherries have the look of dessert. So do chocolate cookie cups (made by baking cookie rounds on the back of muffin cups) filled with mint ice cream and topped with tiny mint cookies. Think about it. I am.

14th annual art exhibit looks for Alaskan artists

Alaskan artists are invited to submit their original paintings, sculpture, prints, drawings and photographs to the 14th Annual Alaska Juried Art Exhibition.

This major statewide art show is designed to show the highest caliber work produced in the state, and encourage new works and originality. Selection of works to be included in the exhibition and the choice of award winners will be made by a nationally prominent visual arts expert.

The deadline for entries is Jan. 18.

Awards include a \$1,000 Juror's Choice, sponsored by the Alaska State Council on the Arts, and \$200 awards to be given for the best works in each category. Purchase awards will also be made by the Anchorage Historical and Fine Arts Museum and the Contemporary Art Bank of the Alaska State Council on the Arts.

In addition, the exhibition will be displayed next year in Anchorage, Fairbanks and Juneau. Exhibition is set at the Anchorage Historical and Fine Arts Museum from Feb. 11 to March 4; at the University of Alaska,

Fairbanks from March 26 to April 12; and in Juneau at the Alaska State Museum from April 30 to May 27.

All persons living in Alaska may enter. Each artist is limited to two entries each of the categories of painting, sculpture, prints, drawings and photographs. Only original works are eligible, and work under instruction will not be accepted. Works must have been completed within the last two years.

Entries will be accepted at the Anchorage Historical and Fine Arts Museum at 121 West Seventh Avenue, Anchorage 99501. Shipped entries must be received at the museum by Jan. 18. All works must be accompanied by a entry blank with a label attached to each piece.

Rules, entry blanks and labels are available at the Anchorage museum, the UAF museum, the Alaska State Museum and all regional arts councils.

The competition is funded in part by a grant from the Alaska State Council on the Arts and the National Endowment for the Arts.

Custodian-artist wins fans

WALLA WALLA, Wash. (AP)—Custodian Darwin Sage's after-hours hobby is growing faster than he ever thought it would. When he first sketched a few quick menu posters for the Washington School cafeteria eight years ago, little did he know he'd become an artist-about-town.

"Oh, I'm not very good," he said, with all due modesty, as he leafed through some colorful, food-stained drawings from his days at Washington School.

"One day the cook there told me she needed some way to tell the kids about what was being served in the school cafeteria. So I went home and drew a few things," he said.

"It got to be such an expected thing that the kids would notice if I didn't have a poster up for just one day," he said. "And soon they began asking me to do some posters for them, too."

"When I left Washington School, I thought I was out of it," he said with a laugh. "But no. The day I got here at Sharpstein the kids began asking me

and they haven't stopped."

He figures he averages between 150 and 200 drawings a year now. At half an hour apiece, that's a hefty chunk of his free time. But he doesn't mind.

"I wouldn't be doing it if I didn't like it. The kids probably think I'm a soft touch," he said. "And I guess I am."

Some days, he gets as many as four written requests from students and teachers alike. One on his desk this week asked for "Snappy riding a bicycle."

He claims no formal art training, but his posters contain a lot of detail and clear facial expressions.

His smiling disposition seems to fit the description of what every elementary school custodian should be. During recess, he'll take time to toss a few footballs with the boys. And he always has a spare minute for broken shoe laces and jackets that won't zip.

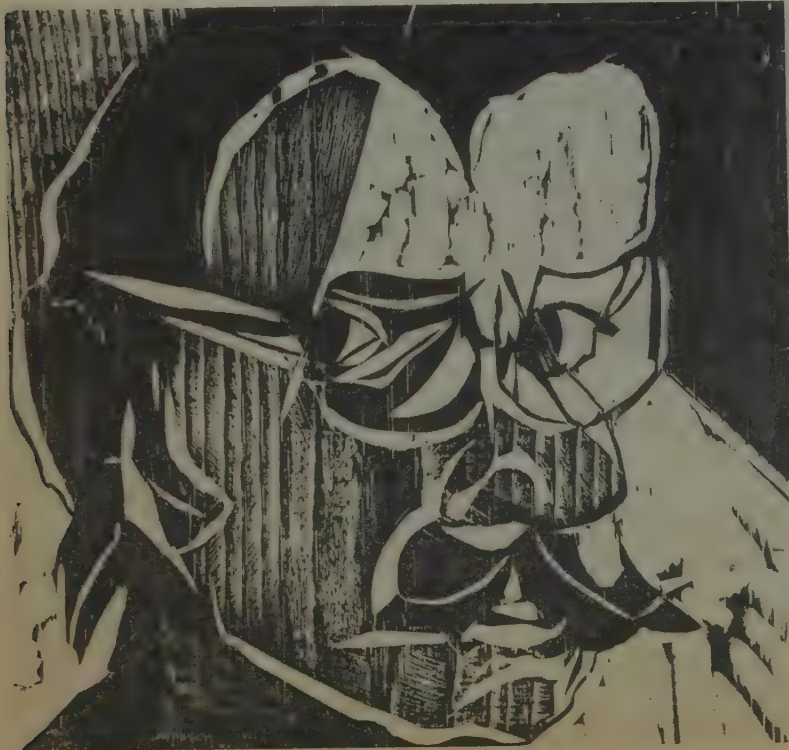
"I guess you have to be flexible in this job," he said, "even though there's a three-page schedule of duties to fill my work day."

Books

Morgan's poetry reflects poet's internal battles, pleasures in his life and Alaska

By CAROL MURKOWSKI
Staff Writer

John Morgan's "The Border Wars" describes a battle scene, but the conflict depicted is in the poet's mind.



UNIVERSITY POET—University of Alaska English professor John Morgan is author of "The Border Wars," recently published by Musk Ox Press of Fairbanks. A full-length anthology of Morgan's work will be published this spring. Morgan is depicted in this print by Lyric Ozburn.

"In 'Border Wars,' I had a sense that I was dealing with ideas on the border of consciousness and 'wars' implies the struggle to articulate half-perceived images and make them come together," the University of Alaska

English professor said. He paused. "It's not a war poem," he added.

"It's an association of where I am, my own situation, my coming to grips with being in my 30s and not ever believing I'd reach 30. There's also a sense of Alaska in the poem, not even having believed I'd ever find myself in Alaska."

Bundled in sweaters, wearing thick hiking boots and heavily framed glasses, Morgan looks as if he's spent his life writing about Alaskan images. In fact, he migrated from New York three years ago.

In Alaska and his native New York, Morgan concentrated on short poems. "The Border Wars," a 390-line free verse poem, was published in chapbook form by Musk Ox Press of Fairbanks early this year. The poem was written during three months last year, and Morgan spent another three months revising it.

"It was really a challenge to myself to see if I could write a long poem," he said. "It meant thinking about poetry in a different way. I find I make discoveries as I go along, and realize I had purposes I wasn't conscious of. It's a matter of discovering things about myself through writing."

Before it was published in book form, a portion of "The Border Wars" won first prize in a national competition for younger writers sponsored by the "Carolina Quarterly." Morgan also recently received a full scholarship to the Bread Loaf Writer's Conference at Middlebury College in Vermont. He has also received the Discovery Award, a national New York Poetry Center award for new writers. His work has been published in several magazines and anthologies, including "The New Yorker," "The American Poetry Review," "Poetry Now" and "The North American Review."

A booklength collection of Morgan's poems, to be entitled "The Boneduster," has recently been accepted for publication and will be released this summer.

Morgan began his writing career in junior high school, and continued his interest at Harvard, studying with Robert Lowell. In New York, he taught writing at Vassar College and in the New York area, but left three years ago to come to Fairbanks.

"It was hard to turn down an offer in Alaska," he laughed. "You wonder if you're up to any adventure if you're not willing to take that step."

At the university he has taught classes in creative writing, composition, literature, writing techniques, graduate writing and other literary courses.

"All poets do all kinds of things," he shrugged. "Wallace Stevens was an insurance executive. That's not a very poetic job, but poetry was a different world for him. I enjoy my position here, and it's also one way to give readings, and it tends to pay better than poetry sales."

Morgan has given readings in Juneau and Fairbanks, and has had several pieces published since his arrival in Fairbanks. He plans another reading in the spring.

Morgan is also advisor to "permafrost," the university's student-run literary magazine. Although students perform editing chores, the magazine will publish contributions from writers across the country.

"There's a lot of material from the state, but it varies widely," Morgan said. "We always get a certain amount of what I call 'moose poetry.' They're trying to do what Robert Service did, and not accomplishing it very well. There are some very good writers in the state, though."

The magazine receives plenty of contributions from Alaskan writers, but Morgan said he, as well as most others, submit their work to out of state publishers. Part of the reason is the shortage of Alaska literary publications; another, he admitted laughingly, is the fascination of Alaska.

"People from Alaska tend to have an advantage, just being from Alaska. I try to be careful not to bring things in just because they're associated with Alaska, though," he said. "There's a danger of stereotyping. I'm wary of writing the kind of 'tourist-Alaska' poem. I don't live in a cabin in the woods—I live in university housing—and I don't want to be dishonest about my experiences. If I was going to write 'moose poetry,' it would have to come directly out of experiences of mine."

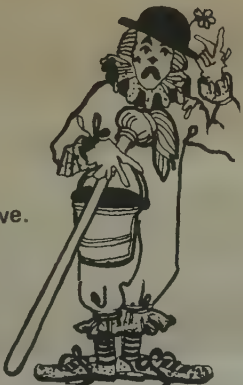
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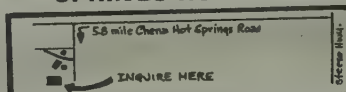
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Schools cancel nativity scenes

RAPID CITY, S.D. (AP)—Rapid City schools have canceled student nativity scenes this Christmas season because of a lawsuit pending against similar programs in Sioux Falls. The lawsuit charges that religious Christmas programs are unconstitutional.

Rapid City school administrators advised school principals to plan Christmas programs that do not dwell on Christianity. Glenn Woldt, director of elementary education, said students will be allowed to sing religious Christmas carols along with secular music and songs about Hanukkah.

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Hart rates top 100 humans

By GREG THOMPSON
Associated Press Writer

SAN ANTONIO, Texas (AP)—Dr. Michael Hart is a slight, mild-mannered astronomer, hardly a wild-eyed rabble-rouser. But he's responsible for countless arguments with his new book ranking his choices as history's Top 100 humans.

"My book doesn't finish any arguments. It starts arguments rather than finishes them," said the Trinity University professor. "I'm getting a variety of letters about it. Some compliment me and others object that I left so-and-so out because he did this-and-this and should be included."

The key to Hart's selections is an individual's total influence on history and total impact on the everyday lives of other humans.

Using that criteria, Muhammad got the nod as mankind's Numero Uno, because, said Hart, "He is remarkable for not only founding a major religion, but for his secular accomplishments as a political leader."

Isaac Newton, who defined gravity, is No. 2, and Jesus Christ came in third.

"I'm getting a fair number of letters objecting to Jesus' ranking, saying he should be first," said Hart, 46. "The credit for the founding of Christianity has to be divided between Jesus and St. Paul, whom I ranked sixth."

"Newton played a central role in the rise of science," Hart added. "He set science on its present course."

City says no to movie filmings

ENGLEWOOD, N.J. (AP)—Many cities are eager to lure Hollywood producers to town, but the Englewood chamber of commerce says it's worried about the hassle involved in becoming a so-called "Hollywood of the East."

Englewood, a city of about 30,000 people about 10 miles outside New York City, is favored as a location for shooting films and television commercials because of its suburban setting and proximity to the city. Cheaper, nonunion labor can also be used in New Jersey.

Businesses say they lost up to \$4,000 last month during the two days that Woody Allen spent here working on his new film "Manhattan." Allen also filmed a scene from his Academy Award winning "Annie Hall" in front of a theater here.

"The city will be sued if it shoots again," says restaurant owner Frank Barco, who claims his receipts were down \$600 when Allen came to town.

"Some of my customers who come from far away left angry without lunch," he says. "There weren't any parking spaces. A number of nurses were stuck inside the restaurant for almost an hour when the film crew shut our doors so they could shoot the scene."

George DeLatorre, a furniture store owner, says he was "totally aggravated" by his last brush with Hollywood.

"They killed my business, killed my deliveries," says DeLatorre, who set his losses at \$4,000. "I didn't have a customer here for two days."

Hart's list of two women and 99 men—the Wright brothers are listed together as No. 30—hails 37 scientists, most from the last 200 years, compared to only 30 military and political leaders.

Hart, himself a scientist, explained, "The scientists and inventors changed the way we actually lived. We just have to look around us to see the impact of science."

Hart's book, which includes brief biographies, has sold more than 20,000 copies since April.

"Some of the ideas that have been percolating in my mind began in dorm discussions," said the amateur historian. "Much of the book is taken from discussions with fellow scientists on the most important scientists. Then it branched out and somebody suggested a book."

Asked if any of the objecting letters made him question his own choices, Hart replied, "As I was in the course of writing the book, I was constantly changing the list. No name has been mentioned that I didn't consider. There

were several borderline cases. Franklin Roosevelt, for example. If I had extended it a few more, he would have made the list. Even now, I sometimes wonder if maybe he shouldn't be 95th instead of 115."

Rounding out the Top 10 are: No. 4 Buddha; No. 5 Confucius; No. 7 Tsai Lun, an obscure Chinese eunuch who invented paper in the first century; No. 8 Johann Gutenberg, who invented moveable printing type; No. 9 Christopher Columbus and No. 10 Albert Einstein.

Since Hart doesn't include Einstein as a native American, George Washington at No. 27 is the top American on the list. Thomas Edison (38), Thomas Jefferson (70) and John F. Kennedy (80) are among other Americans on the list.

The only two women are Queen Isabella I of Spain—No. 68—and Queen Elizabeth I of England—No. 95. "They had both the ability and the opportunity to exert influence," Hart said. "I've gotten very little objections from

feminists. Most just write and say this proves the point that women haven't had much chance in history."

Julius Caesar ranked 65th; Hitler, 35th; Napoleon, 34th, and Joseph Stalin, 63rd.

Hart said he left off Abraham Lincoln because emancipation of the slaves in the United States was inevitable. He included Kennedy, he said, because Kennedy started the U.S. space program that put a man on the moon.

Among the more obscure figures on the list are No. 61 Nikolaus August Otto, the German inventor of the internal-combustion engine; No. 90 Menes, the king of the first Egyptian dynasty, and No. 99 Mahavira, the leading figure in the Jain religion.

Rare book seller thrives on unique merchandise

By KAREN ALTMAN
Associated Press Writer

ORANGE, Calif. (AP)—John McLaughlin doesn't like the term "used books." Instead, he prefers "antiquarian"—rare books—to describe the more than 20,000 volumes on the shelves of his Orange County bookstore.

Although a 1962 pulp novel can be had for less than \$3 in the upstairs section of "The Book Sail," much of the stock commands a hefty fee.

"I think it's a crime when someone advertises 'rare books' when all he really has are old \$1.25 paperbacks," complained McLaughlin, a bearded 36-year-old ex-New Yorker. "My books come in all price varieties, but we cater to the true collector."

For the one-of-a-kind buff, McLaughlin has a first edition King James Bible, published in 1613, for \$1,200. Nearby is the first known edition of "Gulliver's Travels" by the 18th Century author Jonathan Swift. It's \$255.

For fans of the bizarre, McLaughlin has a 1910 copy of "Pilgrim's Progress" bound in human skin—\$650. "I bought this one from an English bookbinder," he explained. "It's a little ghastly; I keep it mainly as a promotional item. I've been given two explanations—one that it's from the upper thigh of a convicted criminal hanged to death, or that someone had a limb amputated and wanted to keep it around."

McLaughlin, who originally wanted to teach English, has been in the rare book business 10 years and at his

present location three years. His specialty is illustrated books.

"Disney is a big thing with me," he said, pointing to shelves and glass cases of cartoon books, manuscripts and paintings.

His treasures include the original Walt Disney "Robin Hood" painting for \$1,500; Carl Bark's "The Family Album" featuring Donald Duck and friends for \$10,000; and the illustrator's dummy for "Pinocchio," \$600.

Some books are valuable for their bindings, such as an 1879 volume bound in fish scales, priced at \$2,750.

Most of McLaughlin's stock comes from other dealers, garnered at book conventions held about six times yearly. He buys others from private parties, generally from estates.

His customers "are all types," he said. Regulars often come in to enjoy the extras McLaughlin offers, such as a chess game in the middle of the store, a bar, and a waterbed under the stairs.

McLaughlin said book collecting is thriving. One reason is the buyer who wants a hedge against inflation. "The investment aspect is pretty important—I've seen books double and triple in value over the years—but books should be collected just for the enjoyment," he added. "Anything less is dehumanizing."



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Records

... by Tony Ciarochi

BLOODY TOURISTS. By 10cc. Polydor, PD-1-6161.

10cc has that saccharin Top 40 sound that may get their 45's playing on the radio every 15 minutes, but which

makes for intensely boring albums. The songwriting is sound, but the energy-less rockers and low-intensity ballads make this a one-listen album.

Two of the better tunes, "For You

And I" and a pseudo-reggae number called "Dreadlock Holiday" are already on the radio. Also good are "Shock on the Tube" and "Last Night."

LOVE BEACH. By Emerson, Lake

and Palmer. Atlantic, SD-19211.

Every since ELP's voluntary two-year leave of absence preceding the "Works" album, they seem to have lost the spark of creativeness that made them one of the first widely accepted art-rock bands.

Keith Emerson seems to have abandoned the blazing organ riffs that won him notoriety while he was with the Nice, and during his earlier years with ELP. Greg Lake has taken to writing almost embarrassing love songs that, though catchy, could be done as effectively by Shawn Cassidy or The Beach Boys.

The only answer I can come up with is they're just not trying like they used to. The basic sound is still there. It just lacks motivation. No band so talented could get this jaded.

JAZZ. By Queen. Electra, 6E-170.

Next to 10cc and Boston, Queen is probably the worst offender for oversaturating songs, album after album, with the same, often cloying, style however unique that style might be. But, Queen keeps thinking up so many ingenious ways of presenting their sound, they almost never fail to amaze with their multi-layered vocals and incredible musicianship.

Queen is the most exciting boring band on the market today.

Queen is making a definite return to the multi-layered guitarists and operatic vocals that brought them distinction on their "Sheer Heart Attack" and "A Night At The Opera" albums. Side two, however, consists mainly of the simpler blues-oriented songs, as on their recent LPs. There is no jazz on this album.

The best songs are "Fat Bottomed Girls," "Bicycle Race," "If You Can't Beat Them" and "Dead On Time."

GIANT FOR A DAY. By Gentle Giant. Capital Records, SW-11813.

This five man Canadian group is well-known among progressive-rock followers as one of the best art-rock bands from this side of the Atlantic and this is one of their best albums. Gentle Giant is a lot punchier than Genesis, and a lot more down to earth than Yes, the two major names in that field of music. They have a distinctly Canadian sound that fortunately keeps them from being pegged "imitations."

The best songs are "Words From The Wise," an instrumental called "Spooky Boogie," "Little Brown Bag" and "It's Only Goodbye."

Billy Joel runs life his own way with New York brand of success

By PETER BOYER
Associated Press Writer

LOS ANGELES—There are a couple of ways to go about the business of being a rock star. The standard way, followed by most, is to make your way to California, wrecking a few hotels and picking up some "urgency" (for the critics) along the way.

Once here, you write a few hit songs about the pain and alienation of a rocker's life on the road, then retire to your canyon mansion and mellow like an overripe guava. You emerge occasionally for a TV special or a half-million-dollar afternoon gig at the ballpark.

Then there is Billy Joel's way. It starts the same, except, once in California, you find yourself not writing hit songs but playing the piano at the Executive Club Lounge, handling requests for "Volare," and, if it's a hip crowd, "Feelings." You don't make the cover of Rolling Stone.

You slowly grow weary of Hollywood and all those nifty rock billboards on Sunset Boulevard, and head back East, which you realize you never should have left in the first place.

Joel is one of pop's real renegades—an urban renegade, not one of those countless drugstore rebels with the silk cowboy shirts and Knotts Berry Farm belt buckles. Joel is one of pop's rare few to escape the glamour and hype

indigenous to the industry and somehow manage to live real lives.

Joel is a resolute New Yorker succeeding in an industry whose Mecca is Los Angeles, an original in a business that rewards imitation.

Even after the enormous success of his "Just The Way You Are"—probably the best love ballad of the '70s—Joel let it be known that he wanted success on his own terms.

Joel, 29, bears a striking resemblance to Rocky Balboa, the pug movie hero created by Sylvester Stallone. There is a swaggering street-pride to Joel's manner and his craft, a pride that sounds inner alarms when the Hollywood hypsters start bearing down.

"I have this big thing about dignity, y'know, about keeping your cool," he says. "The music business will have you doing these ridiculous things. They'll have you dress up like King Kong and go to a record store to sign autographs and be on the cover of People magazine."

"They want to make a 'personality' out of you. They want to make you bigger and more important than you really are. To me, the whole thing is the song, not the singer."

In Joel's case, it could be argued, the song is the singer. Like him, his tunes carry the concrete and lamppost ambience of the streets of New York and

its suburbs, where Joel grew up as a punk (the kind who hung out on street corners and punched folks) with a penchant for music.

His rock numbers, even his love ballads, are infused with a tough-guy sweetness, vogue these days, which makes Joel a darling to the ladies and OK-to-like for his male audiences.

After knocking about from band to band around Long Island, Joel really did come to California and he really did wind up playing the Executive Cocktail Lounge under the name Bill Martin. He was here long enough to put together his band and gather material for a solid return-to-New York album, "Turnstiles."

That 1976 album, which included such hail-New York numbers as "Say Goodbye to Hollywood" and "New York State of Mind," was successful enough to support a year-long tour and keep Joel out of the piano bar lounges.

But it was last year's "The Stranger," which included "Just The Way You Are," that made everyone stop and listen to the song-tales this New Yorker was creating, the jewels Joel calls his chronicles "of normality and regular living."

"For example, Rod Stewart or Jackson Browne talk about the road and the rock 'n' roll glamour and glitter of it all," he says. "I kinda tend to try to shoot for the middle, what I call normality and regular living. What most people consider mundane or commonplace."

"The rock 'n' roll road to experience really doesn't have much to do with what most people experience in life. I'm fascinated by what most people just do every day and don't even see how profound it is."

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Old love letters still fascinate

EDITOR'S NOTE—How did they write, "I love you?" Let us count the ways in a library's collection of old love letters.

By **PHIL THOMAS**
AP Books Editor

NEW YORK (AP) — Victor Hugo got over 17,000 of them from one person.

Jane Austen wrote one backwards.

Thomas Jefferson wrote one on birch bark.

And French writer-philosopher Voltaire wrote some of his in Italian.

Letters, specifically letters of love and affection, explains Herbert Cahoon. The curator of autograph manuscripts at the Pierpont Morgan

Library exhibited some 50 letters he had selected from the library's estimated 100,000-item manuscript collection.

"Here are two from Juliette Drouet (1806-1883) to Victor Hugo," Cahoon says. "They were lovers. Over a 50 year period she wrote him more than 17,000 letters."

"This Jane Austen (1775-1817) is among 51 the library has. It was written in 1817 to her niece Cassandra, and I assume she did it backwards to amuse this child of 5 or 6, to give her a game."

"The Jefferson (1743-1826) was written from Lake Champlain in 1791 and in it the future president tells his

daughter, Martha, "I must always repeat how much I love you."

These are just a few of the letters of this sort that the library has, says Cahoon, who has spent 25 years with the Morgan. "We have, for example, over 200 by Voltaire (1694-1778) to Madame Denis, his niece. He wrote his love letters to her in Italian, which made good sense in those days. Letters often passed through the hands of servants. But if the servants could read at all they probably could read only French, so Voltaire was making sure they couldn't read his letters."

Revelations such as this are what makes this sort of letter important, says Cahoon. "The love aspect aside, some of these letters also are of considerable literary and-or historical importance. You always are finding something new and different."

"In a letter you are getting just about as close to somebody as you can get. It's somewhat like the difference between a first edition of a book and the writer's actual working manuscript. The second puts you much closer to the person."

Cahoon thinks letter writers of the past "more fully expressed themselves than now. People used to feel that they could unburden themselves in their letters, that they could discuss personal problems."

"Now, this sort of thing is done on the telephone. The pace of life is faster now and people don't seem to have the time for writing letters, like this one from 1599 in which the unknown writer says, 'You have my hart (sic) and shall have ever, change when you will but I will never.'"

"I haven't seen many contemporary love letters and in the future people like me probably won't have much to collect. You never know, though. While love letter writing seems to have gone out of style there could be some notable exceptions."

Cahoon says the museum adds to its collection by buying from dealers and at auction, noting that prices have gone up considerably.

"This Elizabethan letter (a note by Elizabeth herself at age 14 to Sir

Thomas Seymour) certainly would sell in the thousands of dollars.

"About 20 to 25 years ago you could get a John Ruskin (1819-1900) letter for \$10 to \$25. Now add on, at least, another zero. Not more than 15 years ago I bought a letter by gastronome U.A. Brillat-Savarin (1755-1826) for \$35. I saw a similar one offered recently for \$500."

Cahoon cites general inflation as part of the reason for the rising cost. He also feels prices are going up "because more and more people are discovering the pleasure of collecting this type of thing and when more people start collecting the same sort of thing the price of what is available goes up."

"And, I suppose, many see them as a hedge against inflation. The prices of some first editions go up and down as their authors go in and out of vogue, but the price of letters seems to hold up pretty well."



WITH LOVE—Herbert Cahoon, curator of autograph manuscripts, poses with some of the love letters in his care at New York's Pierpont Morgan Library. Cahoon doesn't think there will be many contemporary letters of this kind for future collectors. "Now, this sort of thing is done on the phone," he says.

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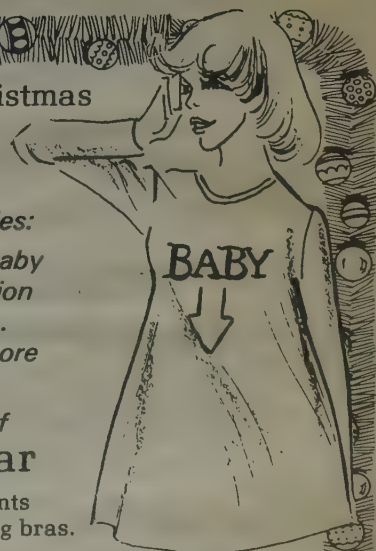
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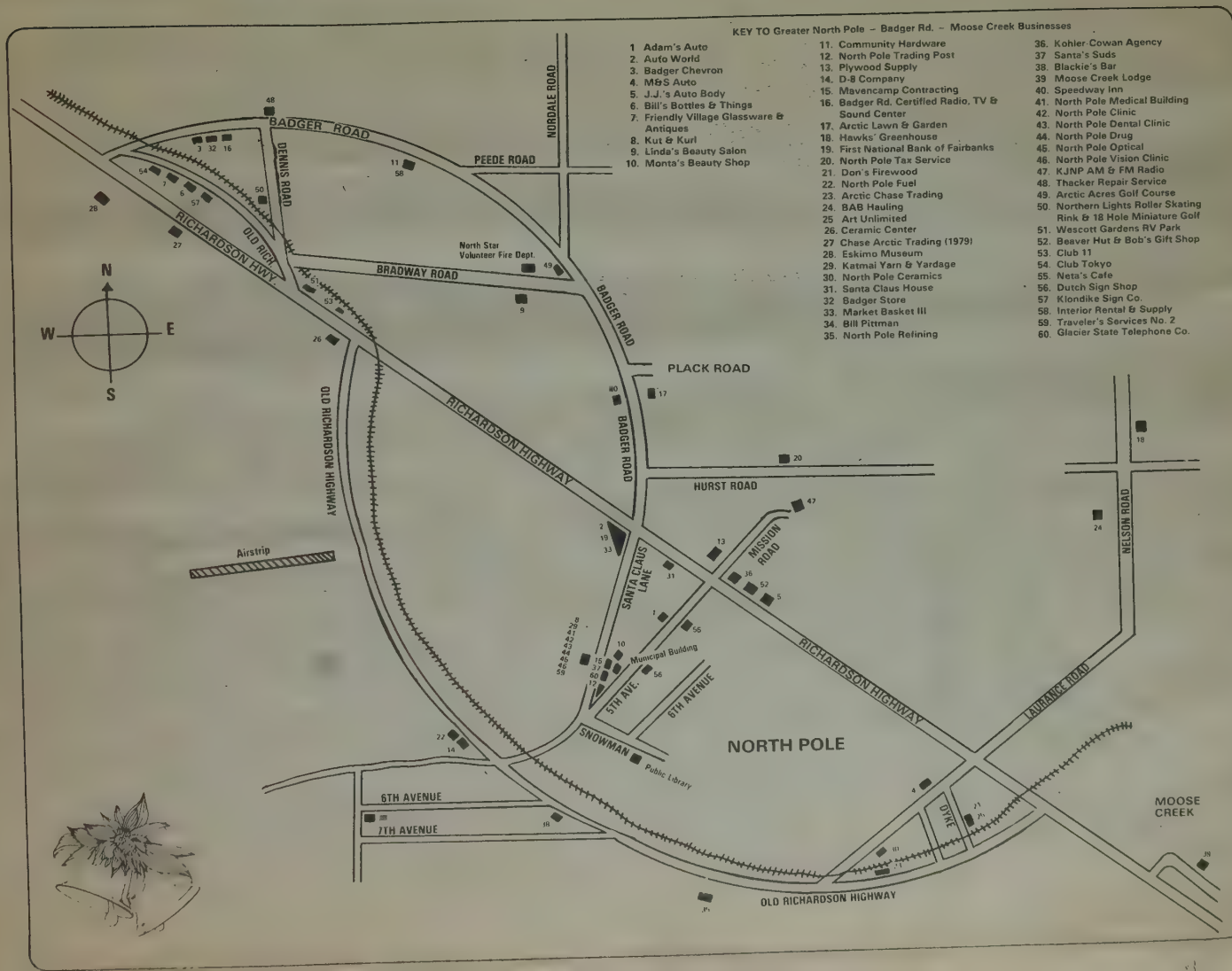
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Greengrower

Give growing gifts, but take care

By LURA GINZTON

House plants are an important part of the holiday season and when we think of Christmas often we think of colorful, cheery plants such as bright red

poinsettias, Christmas cherries and sprigs of mistletoe tied with red ribbon.

Such plants as these make good gifts for they add color and cheer to the case where they are not. Rodents seem

to be unaffected by some toxins that have serious effects on humans. (For example, many Alaskans have seen squirrels gathering the deadly *Amanita muscaria* mushrooms for their winter

stores).

John Kingsbury, in his authoritative book "Poisonous Plants of the United States and Canada" cites a case of a child fatality from eating a single poinsettia leaf. Poinsettias belong to the genus *Euphorbia*, which has many other poisonous members. Thus it would seem prudent to treat them with respect and keep them away from children, although you may feed them to your rats if you like.

The Christmas cherry or Jerusalem cherry, *Solanum pseudocapsicum*, is a popular potted plant at Christmastime because of its bright red fruit. Unfortunately these may be mistaken for edible fruit by children, so they should be cautioned not to touch or eat the "berries." This plant belongs to the nightshade family that has many evil members (as well as edible ones such as tomatoes, potatoes and peppers). No actual cases of poisoning have been attributed to this plant, but toxic alkaloids have been isolated from the fruits.

Mistletoe, although not actually a house plant, is sometimes found around the house at holiday time, usually in doorways where unsuspecting persons may be caught unawares. High up in a doorway is a good place for it, for there it is out of the reach of children. According to Kingsbury, ingestion of a tea made from the berries has caused at least one fatality. Livestock have on occasion been poisoned by browsing on mistletoe.

Narcissus, particularly the small paperwhite types, are sometimes forced into bloom for the holidays. The main season for daffodils as potted plants, however, comes a little later, in February and March. The bulbs of all types of Narcissus are poisonous, so make sure that members of your family do not mistake them for onions.

There is one common house plant that, although not particularly associated with Christmas, is dangerous enough to warrant mention here. This is the *Dieffenbachia*, a large, showy plant often found in offices and living rooms. The common name of this plant, dumbcane, gives a clue to its toxic potential. The plant contains a high concentration of calcium oxalate crystals.

What should you do if you think a child has eaten part of a poisonous plant? The Fairbanks poison control center advises that you should first give the child milk or water to dilute the poison (this should not be done, however, in the case of *Dieffenbachia* where the child may have difficulty swallowing).

Then, if it is during office hours, contact your physician. He may instruct you to give the child a dose of syrup of ipecac to induce vomiting. This is something all parents should have in the home, locked up with the other medicines. The family physician should be consulted about its use so emergency procedures are familiar. If it is after office hours, call the Poison Control Center at 456-7182; their phone is manned 24 hours a day.

These poisoning incidents are extremely rare and as long as the awareness of the potential danger is there one need not be afraid to enjoy these holiday plants.



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CHRISTMAS BLOSSOM— Christmas gifts like this bright red poinsettia can brighten the holidays, but some researchers say they are poisonous. To enjoy them without worry, keep such plants out of the reach of small children.

(Staff photo)

home. But they can also bring trouble, for unfortunately these plants, like many other familiar garden and house plants, are poisonous.

Poinsettias are so associated with Christmas they are practically a symbol of the holiday. They are lovely plants when in bloom, with their bright red, or sometimes pink or white, bracts. The actual flowers are inconspicuous. There is no reason to avoid having them in the home if care is taken and they are kept out of the reach of small children.

The poisonous nature of these plants is somewhat in dispute. A handbook for professional growers quotes an Ohio State University study indicating that they are not poisonous. In this study the poinsettia leaves and bracts were fed to rats. Although in most cases rat studies are valid for humans, this may be a

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By JANE PENDER

Last summer when we were all talking about improvements to the Alaskaland Zoo, most of us were thinking in terms of a place to keep animals that for one reason or another could not be returned to the wild.

And that of course, is one good reason for a zoo, but it is not the only one. In fact, zoos may in the foreseeable future be the only place where many of the really threatened species of animals will be able to live.

We in Alaska have been particularly fortunate in that up to a few years ago, simply by taking a walk or a short drive most of us could see a variety of animals in the wild. But, we have all seen how the pressures of increased population and hunting have altered the old patterns.

Here, the problem is not as acute as elsewhere in the world. A report in Science News recently said that in East Africa's national parks, about 11 per

Pender's Pet Page

cent of their large mammal species will be gone forever in 50 years; and extinction is predicted for some 3.5 million species of animals and plants within the same span of time.

This means that the work of zoos is shifting from the display of animals to the breeding of rare animals, a quite

different matter. Smithsonian Magazine in its last issue says that the National Zoo and others like it are even now involved in this function.

A letter in a recent issue of the Watchbird, a publication of the American Federation of Aviculture, points out that aviculturists also fit into this general picture through their work of breeding rare species whose habitats are now being destroyed.

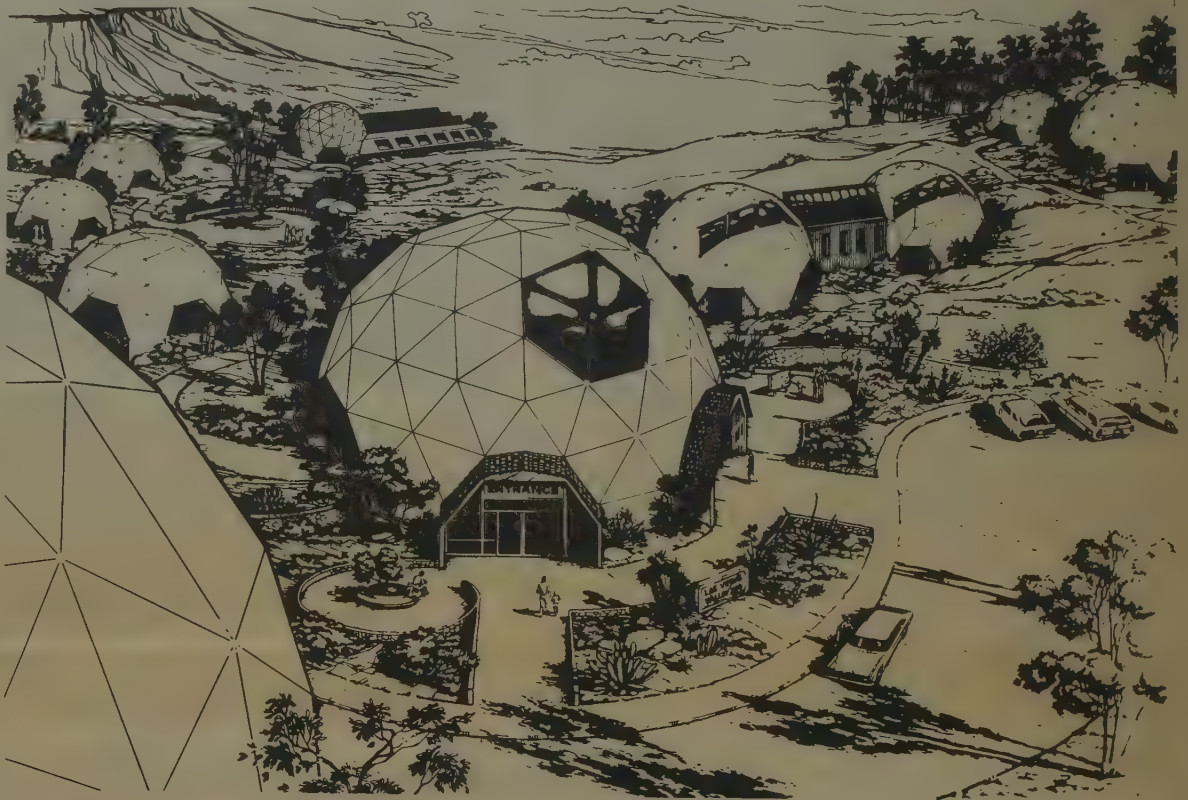
It may be that this is one of the functions we might think about for our Alaskaland Zoo, particularly in respect to the small mammal species indigenous to our state. So far as I know, none of these are endangered at this time. Yet the construction of habitats that would be suitable for them, in a climate right for them, could be a long-range project of great value, not only to

us who live here but also in terms of the country as a whole.

The photograph accompanying is of geodesic domes planned for the Floyd R. Lamb State Park as a showcase for desert animals of the world. The domes are easy to assemble and will be constructed by the small staff now at the zoo. One feature that might not be practical for us here is that each dome will be provided with solar collectors that will provide the energy source for heating and cooling the buildings and for the hot water needed for cooking and cleaning.

* * *

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Penguins flourishing in custom-made zoo

By ROBERT LOCKE
Associated Press Writer

SAN DIEGO (AP)—The building seems to be filled with little people all dressed up in black tuxedos and waddling about like they were at a formal cocktail party.

But the party's held on four tons of crushed ice and some of the guests keep diving—tuxedo and all—into the icy swimming pool. The hors d'oeuvres are raw fish, swallowed whole.

The temperature is below freezing, which is just about right if you're trying to convince some 250 penguins that they're still in the vicinity of the South Pole.

The deception seems to work. Scott Drieschman, assistant curator at the Sea World aquarium here, said the penguins living in the 38-by-52-foot refrigerated room are breeding successfully and seem quite happy after as long as two years in their new home.

Part of the trick, Drieschman said, is to manipulate the room's electric lights to simulate the long darkness of the Antarctic winter and the sunshine of summer.

He said some biologists had worried the birds might become neurotic with nothing to do all day but play and sleep on the artificial ice, swim in the two artificial ponds and stand around on stubby legs.

But Drieschman said two collecting trips to the Antarctic convinced him that "all they do down there is eat, play around, sit around and sleep. There's not really a whole lot to do in Antarctica."

Penguins have been grounded for millions of years, ever since the wings of their ancestors evolved into short, powerful flippers used mostly for swimming in a kind of modified beast stroke. Their outer feathers fold into a hard, watertight shell that protects a layer of soft down.

Thoroughly adapted to life in one of the world's harshest environments—Antarctica—penguins "must have very specific requirements met just to keep them alive," Drieschman said.

He's trying, with his miniature Antarctica, to build the country's first self-sustaining colony of penguins—"sort of like a penguin bank where researchers can come and study the birds."

The colony also is planned as a commercial attraction at Sea World, a popular aquatic zoo.

Drieschman likes to haul out architects' plans for a \$2 million facility, complete with artificial snowstorms, that should allow penguins, scientists and tourists to co-exist.

He said construction may begin late next year and "there would be nothing

like it anywhere in the world."

The penguin colony, which is not open to the public, was collected by the Hubbs-Sea World Research Institute, Sea World's nonprofit research arm.

Drieschman said the idea of a permanent colony began with the National Science Foundation, which has contributed about \$8,900 toward expenses he estimates at \$250,000.

The first crop of 14 adelic penguin chicks, conceived in the refrigerator, hatched last December and January.

The parents had picked through 500 pounds of rocks flown in from Antarctica to build their stone nests. After the female laid two eggs, the male settled in to incubate them. Penguins, Drieschman said, are frequently monogamous, returning to the same mate year after year.

The adelies, comical little creatures about 15 inches tall, share the freezer with about 70 emperor penguins—the 3-foot, 90-pound giants of the penguin world.

The two species mingle amicably in the bare compound. Drieschman said the only serious conflicts develop when emperors, apparently overcome by a mothering instinct, try to adopt adelic chicks. Then the keepers step in.

"The facility we have now, that's strictly a temporary holding facility," he said. "We have a responsibility to maintain these birds in the most natural environment we can."

For the permanent facility, Drieschman foresees a hilly island covered with flaked ice and surrounded by a circular water pond in which "the birds can build up the speeds that they like. In a square tank like we have now, they have to slow down to turn corners."

Collecting the black-and-white birds, which settle by the hundreds of thousands into penguin towns called rookeries on the Antarctic coast, can be an adventure, he said.

The adelies are no problem, Drieschman said. With one on the nest and the other standing guard, you just drop a net over them both and you've got a breeding pair.

The big emperors are more complicated. "You just walk up, wrap your arms around them and try to hold on. That's when things get interesting," Drieschman said.

The two Sea World expeditions to the Antarctica returned with a total of 220 emperors and adelies for the colony.

Sourdough Jack's Alaska

by Mil & Barb Gutridge



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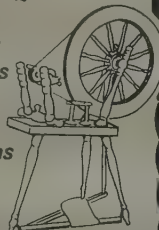
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Headache relief may be in sight

By GRANT FJERMEDAL
Science News Service

PORTLAND—It appears there may be help for those who suffer from nearly constant and excruciating headaches.

By using a combination of standard antidepressant and tranquilizing drugs, Duane Sherwin has been able to bring relief to patients whose headaches had defied all other treatments.

Sherwin's finding is of extreme importance because headaches are considered to be the most common cause of pain—followed by lower back pain—and it appears they are a factor in a significant number of suicides.

Sherwin's combination of antidepressants and tranquilizers also raises fascinating questions about the very nature of headaches, about the relation of brain chemistry between pain and depression.

Sherwin, an associate professor of

psychiatry at the University of Oregon Health Sciences Center, and the director of psychiatric service at the Vancouver, Wash., Veteran's Administration Hospital, came upon his findings in 1972 while he was heading a neurology program for Creighton University and the University of Nebraska.

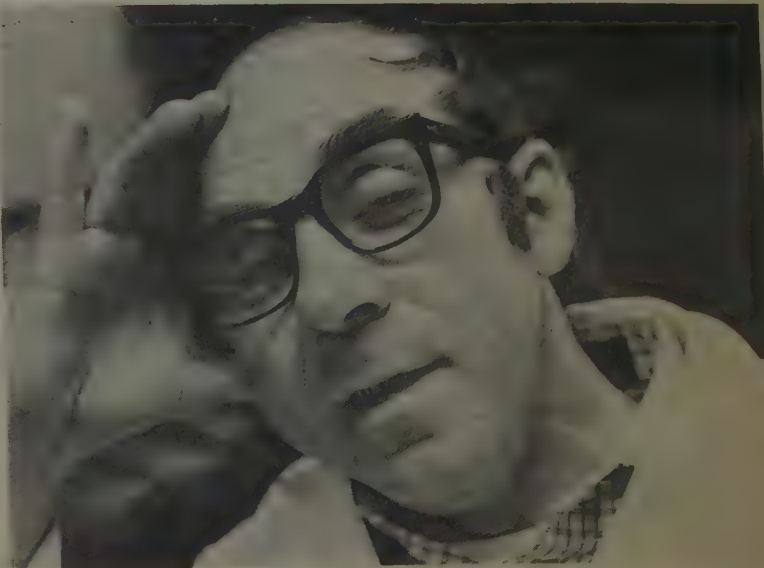
Sherwin was faced with headache patients who were "dumped" at the neurology clinic, having exhausted all other medical avenues.

He established a study of seemingly hopeless headache patients. He found 14 who suffered pain for at least 80 per cent of their waking hours; who had suffered this for at least one year; and who could be helped by no other therapy short of anesthesia.

One of the first things he found was that this group of patients, 10 of whom remained with the study for three years, had a tremendous amount of guilt because of their pain. Their pain had been so constant and uncontrollable—yet medically so untestable and untreatable—that friends and family had often stopped believing it even existed.

"Some of these patients said they were actually hoping they had cancer just to justify the pain," Sherwin said. "One of the first steps we took was to say: 'We believe you. We believe in your headaches.'"

The patients were given complete medical workups to rule out any detectable cause of pain. The patients also were tested on a depression scale where something frightening was



HEAD RESEARCHER—Duane Sherwin, of the University of Oregon Health Sciences Center, believes he may have found a cure for constant and severe headaches. Sherwin uses antidepressants and tranquilizers in treatment.

found—just about all were depressed to the point of being suicidal.

In fact, most of the patients had attempted to take their lives in the past—because of the unbearable pain, Sherwin said.

The patients were taken off the narcotic pain killers, which weren't working for them anyway, and put on the combination of antidepressants and tranquilizers.

"We told them the headaches would go away, that chemical changes caused the headaches and that we could take care of the chemical changes.

"We saw them every two days for the

first six weeks, and then we saw them every two weeks," Sherwin said. "Essentially they all got better. In all patients the pain disappeared within 10 days after giving them the medications. And within 21 to 25 days the depression was gone also. Usually it takes a few weeks for antidepressants to work."

In December of 1975 Sherwin moved to Oregon and the study was halted. The patients were advised to continue their medications, but many of them eventually stopped taking them, Sherwin said. The benefits of the drugs taper off over a four to five week period, and Sherwin said some patients just slowly slipped back into a life of headaches.

Of the original 10 patients, three committed suicide after discontinuing treatment, Sherwin said, with two of them leaving notes speaking of their pain.

Sherwin now is involved in his third study using the same drug combination to quell otherwise incurable headaches. In carefully controlled double-blind studies, in which neither the doctor nor the patient knows who is getting the drugs and who is getting the placebos, the combination of antidepressants and tranquilizers is getting an 85 per cent success rate.

"I think one million persons in the United States have intractable headaches and they learn to live with them," Sherwin said. "Of this million, I think 800,000 could be helped to the point where they would have no headaches at all."

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Scientists work on shellfish farming

By DONALD HIRZEL
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LEWES, Del.—Marine scientists at University of Delaware research laboratories are growing uniform, high-quality oysters to market size in only nine months, rather than the three years necessary to produce a similar shellfish in the natural environment.

They have had equal success with the highly desired little neck clams.

In fact, they have been so successful that a new laboratory is being built here to allow the testing of large-scale production of oysters and clams under controlled conditions. The laboratory is expected to be completed by next year.

Kent Price Jr., associate dean and associate professor of the College of

Marine Studies here, is so enthusiastic about the success of the research that he foresees a time—perhaps 30 or 40 years from now—when shellfish will be produced in Chicago and Denver.

His colleague, Ellis Bolton, is more guarded in his predictions, noting that past predictions about the artificial production of shellfish have not panned out.

But even so, Bolton cannot conceal his hope that a major breakthrough has occurred in the artificial production of oysters and clams and other species of shellfish.

The breakthrough came about after the University of Delaware 10 years ago began experimentation in mariculture—the science of raising sea

life in controlled conditions—shortly after establishment of the research center here.

Price, a native of Chestertown, Md., was the first faculty member at the facility and was instrumental in developing the procedures that have resulted in the production of oysters and clams in the laboratory.

Such artificial production of marine life is a difficult undertaking because of the basic lack of knowledge of marine life and the many unknowns involved in producing an environment conducive to such life.

Price pointed out that the controlled growth of land-grown food such as corn and wheat has been perfected by man through the ages, but that "we are just now crossing the frontier from hunting and collecting marine species for man's use to properly managing and husbanding them for uses equivalent to those seen in terrestrial food and fiber production."

He said research here turned to mariculture as the result of the decline in both oysters and clams in the natural environment of Delaware Bay.

For example, in 1885 Delaware Bay and its tributaries yielded about 27 million pounds of shelled oysters. In the 1950s, when the mysterious disease WSX struck, the yield sank to about 3 million pounds.

Price said the decline of oysters and clams also has occurred in Chesapeake Bay.

In 1885 Chesapeake Bay produced 117 million pounds of oysters, but by 1970 this had declined to about 27 million pounds, after hitting a low of about 10 million pounds in 1960.

This drop in production, which has hurt thousands of people who make their living from the water and has sent prices climbing, caused tidewater states to begin seeking answers to the problem.

In Maryland, for example, work has concentrated mainly on research to rebuild existing natural oystery beds.

Delaware, on the other hand, concentrated on mariculture after initial research centered on shellfish diseases, controlled production, predators, water quality and food for the animals.

"After the first two years of research it became apparent to us that a new approach was needed," Price said. "Natural water quality was highly variable and subject to human and industrial contamination. Harvest times were seasonal and animal quality was not uniform."

It was felt such controlled conditions could cause the oysters and clams to spawn on command, ultimately insuring year-round production, growth at increased rates over a shorter time due to diet and feeding rates, uniformity of produce, disease-free shellfish and recycling of materials and energy to continue the production cycle.



OYSTERS ABOUND—Ellis Bolton inspects a tray of oysters raised by marine scientists at the University of Delaware's research laboratories. Scientists are growing uniform, high-quality oysters to market size in nine months, rather than the three years it takes for natural oysters.

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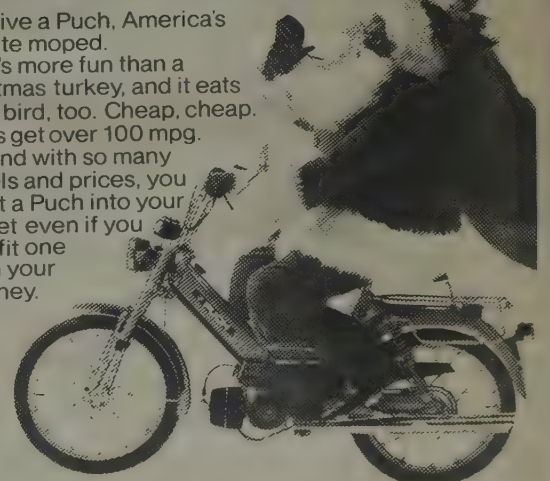
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12th in a series

Property taxes raise wrath

(EDITOR'S NOTE: This is the 12th in a series of 15 articles exploring "Taxation: Myths and Realities." In this article, Roy Bahl of the Maxwell School, Syracuse University, discusses why the property tax has aroused such opposition and suggests reform measures that might meet some of the problems.

(This series was written for Courses by Newspaper, a program developed by University Extension, University of California, San Diego, and funded by a grant from the National Endowment for the Humanities.)

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By ROY BAHL

Local tax systems in the United States suffer, to varying degrees, from three shortcomings.

First, they are inelastic. They fail to grow adequately in response to growth in personal incomes, prices, public service demands or costs of public service. This failure leads to highly visible increases in the tax rate that stimulate taxpayer revolt.

Second, they are inequitable on three counts: treating taxpayers differently when their situations are similar (such as homeowners with equally valued homes); placing proportionately heavier tax burdens on those with low income; and, in some cases, favoring suburban governments over cities.

Third, they lead to undesirable economic choices, for example, urban sprawl and disincentives to rehabilitate structures.

In response to these problems, local government revenue reform has taken two directions: reform of the property tax, which dominates the local revenue system and embodies all the undesirable features mentioned, and greater use of sales and income taxes and user charges.

Property Tax Reform

The property tax is by far the most important local government revenue source, accounting for 60 per cent of school district tax revenues. Recently it has declined in relative importance but, in 1975, it still accounted for about one-third of all revenues received by local governments—including state and federal aid.

By almost any test for a good tax, the property tax fails. It is based on a form of wealth that may not reflect ability-to-pay. It taxes actual rather than optimal land use, and structures as well as sites, which makes it undesirable for promoting better land use or stimulating reinvestment in urban structures. It does not readily respond to local economic growth. And it is costly to administer.

Nevertheless, the property tax remains the major revenue source of local governments. Efforts have therefore been directed to improving the tax rather than replacing it.

Revenue Growth

The slow growth in assessed property values relative to growth in personal income and prices, plus the necessity, in most cases, of getting voter approval to raise rate limits, make the property tax a poor source for financing expanding urban public service needs.

The problem may be particularly acute for older central cities, where much new construction—usually a major source of growth in assessed value—is tax-exempt (government buildings, public housing projects, freeway interchanges). Furthermore, housing values in the central city are growing slowly, if at all, because of residential abandonment and white flight to the suburbs.

The other sources of growth in assessed value comes from updating existing assessments. But it is difficult to adjust values upward on a year-to-year basis when there is little objective evidence of property value changes for individual parcels. Consequently, assessed values are infrequently revised and don't keep pace with property value increases.

Reforms to improve the revenue growth of the property tax have concentrated on bringing rapidly growing suburban areas within the local property tax base. This has been done through city-county or metropolitan government consolidations—often

highly unpopular with citizens who prefer small communities; through creation of specific purpose governments; and—in at least one case, Minneapolis—for the specific purpose of tax base equalization.

A second reform aims at keeping assessment rolls current by using mass



appraisal techniques. The most promising are computer-based analyses that relate physical characteristics and location of a property to its selling price.

A more recent reform movement, initiated in California, limits the level as well as the growth of property taxes. Whether such restrictions will be limited to states such as California—where the state surplus is high and property tax increases have been enormous—remains to be seen.

Equity

The property tax is accused of being unfair and inequitable because it taxes families with homes of equal value in

come or "high cost" families, such as those with children who need educational facilities. Reform initiated by state courts may eliminate such disparities by requiring that school finance be made independent of the property base.

The property tax burden can be particularly heavy on low-income homeowners, especially the elderly, whose income does not increase with inflation and rising property taxes. Approximately half the states have therefore introduced circuit breakers—property tax relief for low-income groups that takes the form of direct reduction in the property tax bill, a refundable credit against state income taxes, or a cash refund.

Economic Choice

By penalizing investment in structures, the property tax may slow urban development. Because the tax is based on structures as well as on land, it increases whenever a property is improved, thereby reducing the return on such an investment.

Theoretically, a tax on land only—such as that proposed by 19th century social reformer Henry George—would not affect investment incentive. Such "site value" taxes or differentially

the county by a formula—as in New York State.

Local income or earnings taxes may be of three kinds. They may be levied on local residents, discriminating in favor of untaxed commuters, as in Washington, D.C. Or they may tax central city residents and commuters, though the rate on commuters is often lower, as in New York City. Or, third, countywide income taxes may be levied as surcharges on state income taxes, as in Maryland.

User charges—charging people directly for public services as if they were private goods—and general benefit taxes have the appeal of tying tax burdens of beneficiaries. Their applicability is limited, however, by the problems of allocating the charge or tax on the basis of benefits received from the service.

Nevertheless, these charges, like local sales and income taxes, are growing rapidly as the property tax proves inadequate to meet the revenue needs of local governments. One possible side effect of Proposition 13—the California tax initiative—is an increasing reliance on user charges by local governments to make up for lost property tax revenues.



the same jurisdiction at different rates; it places a greater tax burden on city than suburban residents; and it places a greater tax burden on low-income families than on others. Evidence suggests the first two charges are true; the third is debated among economists.

Partly because the appraisal process depends on individual judgments and partly because of failure to update property values annually, the ratio of assessed value to market value varies widely, even within the same community.

In some states, variation in assessed to full value is deliberate, usually involving heavier assessment of commercial and industrial property. Where variations result from error, states have started to monitor assessments by comparing them to sales figures and to increase the professionalism of assessment staffs.

The second inequity is variation between jurisdictions: taxpayers in poorer jurisdictions may have higher tax burdens because the overall taxable capacity of the jurisdiction is lower. This disparity arises partly from fiscal zoning—higher income communities using zoning laws to exclude low in-

higher rates on the land component of the property tax are not uncommon elsewhere. In the United States, however, there seems to be little sentiment for changing the land-and-improvements base.

The current property tax also may encourage urban sprawl by assessing actual rather than highest-and-best use. Property assessed as farmland on an urban fringe, for example, may carry a low tax, and therefore may be withheld from urban development, encouraging land speculation. Plans to eliminate such speculation include assessment at highest rather than actual use, and payment of a land value increment tax, based on increase in property value due to conversion to urban use.

Primarily because of the inadequate yield of the property tax, local governments increasingly have turned to faster-growing, nonproperty taxes, including sales and income taxes and user charges.

Retail sales taxes often are levied countywide so as not to discourage sales in a particular area, and are shared among the local governments of

The views expressed in Courses by Newspaper are those of the authors only and do not necessarily reflect those of the University of California, the funding agency, or the Daily News-Miner.

NEXT WEEK: James Papke, professor of economics, Herman C. Krannert Graduate School of Management, Purdue University.

ABOUT THE AUTHOR—ROY BAHL JR. is professor of economics and director of the Metropolitan Studies Program at the Maxwell School, Syracuse University, where he joined the faculty in 1971. Previously an economist with the International Monetary Fund, he has been a consultant to local, state and federal government agencies. His numerous publications include "Metropolitan City Expenditures, and the Economic Base," "Fiscal Centralization and Tax Base" and "Government Reform in the Seventies."



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On television

This week's movies and specials

Excellent ****
Good ***
Fair **
Poor *
No stars indicates the movie has not been rated.

TODAY

Movie: "The Bible," Channel 11, 8 p.m. Stars George C. Scott, Peter O'Toole, Ava Gardner and Franco Nero, with John Huston as narrator. The film epic recounts the story of man's creation, his fall, his survival of the flood and his indomitable faith in the future.***

Cinema Showcase: "Monty Python and the Holy Grail," Channel 9, 10 p.m. (Repeat from Tuesday.) ***

Theatre Eleven: "Climb an Angry Mountain," Channel 11, midnight. Stars Barry Nelson and Fess Parker. Parker stars as a lawman who reluctantly

leaves his motherless children alone on a ranch to go after an Indian accused of murder. **

SUNDAY

PBS Movie Theatre: "L'Avventura," Channel 9, 3 p.m. Michelangelo Antonioni's 1960 perceptive story about empty relationships in an unfeeling world.****

The Big Event: Ode to Billy Joe, Channel 2, 8 p.m. Robby Benson and Glynnis O'Connor star as two Mississippi teen-agers whose romance brings joy until a secret in their relationship prompts Billy Joe to commit suicide on the Tallahatchie Bridge.

Harvesting Hope, Channel 2, 10 p.m. The Rev. Arthur Simon, executive director of Bread for the World, and Eugene Stockwell, member of the President's Commission on World Hunger, talk about efforts to educate Americans about hunger.

Movie: "A Question of Love," Channel 11, 10 p.m. Gena Rowlands and Jane Alexander star in a sensitive drama about a homosexual mother who fights to keep custody of her small son.

MONDAY

Bobby Vinton's Rock-'N-Rollers, Channel 11, 7 p.m. Music-variety special, starring Bobby Vinton, with a fast-moving trip into the nostalgia of rock 'n roll.

Lucy Comes to Nashville, Channel 11, 8 p.m. Music and comedy special

starring Lucille Ball with guest stars Lynn Anderson, Archie Campbell, Tom T. Hall, Barbara Mandrell, Ronnie Milsap, the Oak Ridge Boys and Mel Tillis.

Movie: "Betrayal," Channel 2, 9 p.m. Rip Torn and Lesley Ann Warren star in a true story about a woman who successfully sued her psychiatrist for luring her into a sexual relationship.

TUESDAY

The Billy Graham Christmas Special, Channel 11, 8 p.m.

Big Event: "Lady of the House," Channel 2, 9 p.m. Dyan Cannon stars in this story about Sally Stafford, the San Francisco madam who later became the mayor of a wealthy bay-area suburb.

The Nobel Prize Awards, Channel 9, 9 p.m. This coverage of the 1978 Nobel Prize ceremony in Stockholm features portraits of the laureates.

Movie: "The Pirate," Channel 11, 9 p.m. Part 1. Based on Harold Robbin's novel about human passion set against a backdrop of Arab-Israeli intrigue. Stars Franco Nero, Anne Archer, Olivia Hussey, Ian McShane, Christopher Lee, Michael Constantine, James Franciscus and Eli Wallach. (Part 2 airs Wednesday.)

WEDNESDAY

Movie: "Bud and Lou," Channel 2, 9 p.m. Harvey Korman and Buddy Hackett star as comedians Abbott and Costello in a drama about the behind-the-scenes challenges the two faced to bring laughter to millions of fans. Arte Johnson, Michele Lee and Robert Reed are also featured.

Movie: "The Pirate," Channel 11, 9 p.m. Part 2. (Continued from Tuesday.)



MAGIC MAN—Master illusionist Doug Henning demonstrates his acclaimed skills in his fourth holiday special, "Doug Henning's World of Magic." Thursday, Channel 2, 8 p.m.

Movie: "The Spell," Channel 11, 11:30 p.m. Lee Grant stars as a mother who must learn to cope with her disturbed daughter, a troubled teenager who has the power to hurt her tormentors. James Olson, Susan Myers and Helen Hunt also star. **

THURSDAY

Matinee Eleven: "Take Her, She's Mine," Channel 11, 12:05 p.m. Stars James Stewart, Sandra Dee and Audrey Meadows. Stewart stars in this comedy as a father who tries to keep his daughter from becoming a beatnik and winding up in the soup himself. ** The Doug Henning Special, Channel 2, 8 p.m.

FRIDAY

Movie: "The Gift of Love," Channel 2, 9:30 p.m. Marie Osmond makes her acting debut in this Christmastime love story set in New York City in the 1890s.

Movie: "Super Cops," Channel 11, 11:45 p.m. Stars David Selby and Ron Leibman as a New York City police officers nicknamed Batman and Robin who are committed to cleaning up their crime-ridden beat. **

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TERRORIST FIGHTER—Eli Wallach stars in a two-part movie presentation of Harold Robbins' powerful contemporary novel, "The Pirate." Tuesday, Channel 11, 9 p.m.



FIFTIES STARS—Eve Arden and Gale Gordon guest star in show taking a nostalgic look at the '50s, in "Bobby Vinton's Rock 'n Rollers." Monday, Channel 11, 7 p.m.

Today

- 4:00 p.m.**
2—Baggy Pants and the Nitwits
9—G.E.D. By TV (Repeat from Tuesday)
- 4:30 p.m.**
2—American Bandstand
9—G.E.D. By T.V. (Repeat from Thursday.)
11—30 Minutes—News show presenting features of importance to youths. CBS News Correspondents Betsy Aaron and Christopher Glenn as co-edit.
- 5:00 p.m.**
9—Big Blue Marble
11—Campmeeting Time in the Village
- 5:30 p.m.**
2—NBC Nightly News
9—Studio See
11—Mutual of Omaha's Wild Kingdom—"Women in the Wild Kingdom"
- 6:00 p.m.**
2—Good News
9—Grin and Repair It—"Beyond the Back Door"—This program looks at installation and repair of a screen door; types of door springs and catches; replacing a worn door threshold, patching, blacktop and concrete; laying a brick patio.
11—Fairbanks Evening News
- 6:30 p.m.**
2—Carter Country
9—Black Perspective on the News
11—CBS Evening News
- 7:00 p.m.**
2—CHiPs—Five college boys, paying off a grudge for a marijuana bust, plant the drug at a CHiP party.
9—Soccer Made in Germany
11—Alaska Review—A look at the lifestyles, management conflicts, and impact on Alaska by the mysterious pacific salmon. Also included is a profile of Petersburg, a fishing town.
- 7:30 p.m.**
11—Mork and Mindy—With an enraged town bully hot on his heels, Mork remains resolutely non-violent in keeping with his Orkan ways, and is baffled by the efforts of Mindy and Frederick to give him a quick education in earthing self-defense.
- 8:00 p.m.**
2—Centennial—Chapter 5—Col. Frank Skimmerhorn, a religious fanatic in command of a private army, vows to destroy the Pasqueville brothers and rid the country of Indians. His massacre results in the arrest of Maj. Maxwell Mercy and Capt. John McIntosh, who are accused of being traitors. The Indian wars are finally finished as Skimmerhorn unleashes his savagery against the unarmed, exhausted Indians.
9—Once Upon a Classic—"Secret Garden"—After her parents die in India, Mary Lennox, a contrary young girl, is sent to Yorkshire to live with her uncle, Mr. Craven, at Misselthwaite Manor. She is to make her home in two isolated rooms on the huge mansion's top floor. Her uncle is an eccentric, embittered hunchback who entrusts

- her upbringing to servants. The housemaid and foot man become Mary's best friends. Her only amusement is walking about the grounds. She discovers the existence of a "secret garden."
- 11—Movie—"The Bible"**—Stars George C. Scott, Peter O'Toole, Ava Gardner and Franco Nero, with John Huston as narrator. The film epic recounts the story of man's creation, his fall, his survival of the flood and his indomitable faith in the future.
- 8:30 p.m.**
9—Julia Child and Company—"Sunday Night Supper."
- 9:00 p.m.**
9—The Long Search—"Loose Ends"—Host Ronald Eyre takes an intimate and personal look inward in this episode at his own beliefs and how "The Long Search" has altered or affected them. He reveals his own background and takes stock of his own attitudes.
- 10:00 p.m.**
2—Praise the Lord
9—Cinema Showcase—"Monty Python and the Holy

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11—NFL Pre-Game
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2—NFL Football
11—NFL Football—Dallas Cowboys vs. Philadelphia Eagles
11:00 a.m.
2—NFL Football
11—Jimmy Swaggart Program—"Come Up With Me"—Part 4
11:30 a.m.

11—Music and the Spoken Word
Noon
11—Bible Foundation
12:30 p.m.
11—Oral Roberts and You—"What Do You Do When the Medicine Runs Out?"
1:00 p.m.
11—It Is Written
1:30 p.m.
11—The Lawrence Welk Program—"Welk Salutes Irving Berlin—America's Musical Nabob of Songs"
2:00 p.m.
2—Day of Discovery
9—Once Upon a Classic—"Secret Garden"—After her parents die in India, Mary Lennox is sent to Yorkshire to live with her uncle, Mr. Craven, an eccentric, embittered hunchback who entrusts her upbringing to servants. The housemaid and footman become Mary's best friends. Her only amusement is walking about the grounds where she discovers the existence of a "secret garden."
2:30 p.m.
2—Praise the Lord
9—Cinematic Eye—Benjamin Dunlap discusses director Antonioni's style of movement and composition and his use of sound and image in L'Avventura.
11—Tarzan and the Super Seven
3:00 p.m.
9—PBS Movie Theater—"L'Avventura"—Antonioni's 1960 strangely gripping story of Italy's idle evolves around the mysterious disappearance of a girl on a yachting trip and the ensuing relationship between her lover and her best friend.
4:00 p.m.
11—What's New, Mister Magoo?
4:30 p.m.
2—Robert Schuller/Hour of Power
11—Clue Club
5:00 p.m.
11—Ruff House
5:30 p.m.
2—Meet the Press
9—The Long Search—"Loose Ends"—Host Ronald Eyre takes an intimate and personal look inward at his own beliefs and how "The Long Search" has altered or affected them. He reveals his own background and takes stock of his own attitudes.
11—Hee Haw—Guest stars include Mel Tillis, Roy Head and Gerald Smith.
6:00 p.m.
2—Hardy Boys
6:30 p.m.
9—Toys for Parents, Toys for Tots—The Cooperative Extension Service at the University of Alaska, Fairbanks examines the alternatives to Christmas gift buying. A co-production of KUAC-TV.
11—CBS Evening News
7:00 p.m.



TEEN LOVE STORY—Robby Benson and Glynnis O'Connor star as teen-agers whose romance met with disaster on the Tallahatchie Bridge on the Mississippi River and was immortalized in the tuneful legend, in "Ode to Billy Joe." Sunday, Channel 2, 8 p.m.

2—The Wonderful World of Disney—"The Gnome Mobile" Part 2. Matthew Garber and Karen Dotrice star with the late Walter Brennan and Ed Wynn in the concluding half of a tall tale about small people searching for a colony of their species.
9—Forsyte Saga—"In the Web"—The detective agency reports to Soames that a gentleman has been paying Irene marked attention in Paris. Soames calls on Jo and warns him against coming between husband and wife.
11—60 Minutes
8:00 p.m.
2—The Big Event: Ode to Billy Joe—Robby Benson and Glynnis O'Connor star as two Mississippi teen-agers whose romance brings joy until a secret of their relationship prompts Billy Joe to react in a precipitous tragic act on the Tallahatchie Bridge. The story was inspired by Bobbie Gentry's hit recording of several years ago.
9—National Geographic Special—"Living Sands of the Namib"—For a million years or more the sun's rays have baked and the coastal fogs have misted South-Western Africa's Namib Desert. Yet in this seemingly barren stretch of land, National Geographic's cameras have captured amazing glimpses of life in the Namib. (Repeats Saturday.)
11—Battlestar Galactica—"The Living Legend"—Part 1—With guest stars Lloyd Bridges and Anne Lockhart. Humanity is threatened with annihilation when Adama engages in a fierce conflict with the hot-blooded commander of another battlestar, who's obsessed with leading both ships in a suicidal attack on the Cylons.
9:00 p.m.
9—Masterpiece Theatre—"The Duchess of Duke Street"—While Louisa is on holiday Lizzie is hired as laundry maid. She is a great success and gets on very well with the rest of the staff. But trouble begins when a guest complains that some valuables are missing.
11—All In the Family—Edith stages her own private revolt after she applies for a bank loan and discovers there are very different rules for men and women.
9:30 p.m.
11—Alice
10:00 p.m.
2—Harvesting Hope—The Rev. Arthur Simon, Executive Director of Bread for the World, and Dr. Eugene L. Stockwell, a recent appointee to the President's Commission on World Hunger, will talk with moderator Phillip Johnson about efforts that are being instituted to help the American public better understand and respond to the problem of hunger.
9—Nova—"Light of the 21st Century"—The laser has come a long way since its starring role as a ray gun in James Bond's "Goldfinger." This piercing beam of the most intense light in the world, to play a key role in the everyday life and industry of the 21st century, is examined with special attention to how it will affect people's lives.
11—Movie—"A Question of Love"—Gena Rowlands and Jane Alexander star in a sensitive, responsible drama based on actual events. It focuses on the compelling struggle of a mother to retain custody of her small son—a struggle that is complicated by the revelation that she is living in a homosexual relationship.
11:00 p.m.
2—Focus 2
9—Firing Line
11:30 p.m.
2—Movie—"The Reivers"—Steve McQueen stars in this film set in a small Mississippi town, about a child-like man and his young side-kick, who borrow the boy's grandfather's shiny yellow Winton Flyer and head out for a fling in Memphis. Will Greer and Mitch Vogel co-star.
Midnight
11—Face the Nation

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Radar turns in his corporal's stripes after seven-year hitch on 'M*A*S*H'

By JAY SHARBUTT
AP Television Writer

LOS ANGELES—The Korean war of CBS' "M*A*S*H" began in 1970. McClean Stevenson and Wayne Rogers transferred out several seasons ago. Now, Gary Burghoff says he won't be back next year.

The pint-sized actor, who first played the omniscient Cpl. Radar in the 1969 movie version of "M*A*S*H," says he isn't unhappy with the series. It's just that he feels it's time for a change.

"M*A*S*H" regularly airs Mondays on Channel 11 at 9 p.m.

"I don't feel I can do the character justice anymore, and I've always wanted to do things to the best of my ability," he said.

"But after seven years in the same character, I feel it's almost to the point where I'm taking the character for granted. I'm almost bored myself and I don't want to bore the audience.

"It wouldn't be fair to the audience or myself to do less than I can."

Another reason: he wants to spend more time with his wife, Janet, and their daughter, Gena, at their Malibu Canyon home.

Burghoff, born in Bristol, Conn., educated in drama at New York's Music and Dramatic Theater Academy, first hit it big in his trade in 1967, in an off-Broadway musical.

He had the lead role in "You're a Good Man, Charlie Brown" in New York and here for three years, then got lucky again in the movie and later TV version of "M*A*S*H."

The loot from the latter has helped him pursue an unlikely sideline for America's most famous Army corporal: collecting art.

"I've always been interested in it, but 'M*A*S*H' has enabled me to buy some really important pieces," he said. By his count, his collection includes 15 major works signed by such folks as Salvador Dali and Toulouse-Lautrec.

His most recent acquisition, "Olympia," was bought for a "reasonable" sum at auction, he says, adding the tab might have been unreasonable had the auctioneers noticed something.

Such as a small, yellowed sticker on

the back of the painting. It said the work was from the late J. Paul Getty's collection.

Burghoff says he collects art for two reasons: one, as a hedge against inflation, and two, for enjoyment.

"You have to invest whatever money

you can eke out after taxes," he said. "I chose art instead of stocks and bonds because I believe in investing in things that give you great joy.

"Otherwise, it'd be stupid."

About the future: Burghoff says he'll film his last "M.A.S.H." next month,

but hasn't seen the script yet and doesn't now know how he'll bid adieu to his colleagues and the war.

"I'm not leaving 'M.A.S.H.' because I'm dissatisfied," he emphasized. "I'm leaving only because seven years is enough for me."

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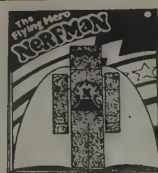
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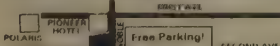
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Actors start theater on shoestring

By WILLIAM GLOVER
AP Drama Writer

NEW YORK—"Most American actors," says Rip Torn, "are very lucky to get one chance at a classic role in a lifetime."

That explains why Torn, his wife, Geraldine Page, and a dozen kindred spirits have rallied to an innovative venture called Sanctuary Theater. After a couple of years of gypsy endeavors, the repertory group has just found a permanent home at Greenwich House, a venerable community service center in Manhattan's Greenwich Village.

The big problem is funding. But operating on a shoestring is an old habit for Torn, who's been known to pass up a movie role to do a desired drama on some byway stage.

"I've done it so much," he reports, "people say, 'he's crazy.'" He accepts that sort of thing like one long hardened against those who equate success solely with money.

"I've been subsidizing other organizations off and off-off Broadway for nearly a quarter century," the former Texas oilfield roustabout asserts, "and if I'm going to work in a non-profit setup for the rest of my years in New York, I want it to be my own home."

Page interrupts her knitting on a nearby sofa to note that the search for a permanent base "has been such a steady factor in our lives that he looked for a theater wherever we travelled."

The company got its name because a while back a church almost provided the refuge.

"They've got gay rights groups there, anarchists, drug rehabilitation activities," explains Torn, "but at the last minute someone decided having actors around would raise their taxes." He kept the name, however, "because actors need a sanctuary as much as anyone."

Another time, Torn was promised use of an abandoned ferryboat at Sausalito, Calif., spent \$3,000 and a summer cleaning the craft only to get a municipal veto.

The troupe was organized in 1976 and en route to Greenwich House, the troupe has scored critical successes in various spots. In January, the troupe will collaborate with the American Place Theater in a production of "Seduced," a Sam Shepard fantasy loosely based on the real saga of Howard Hughes. Torn will play the central role.

"Doing something with another group," the star remarks, "helps develop a continuity for our identity."

Says Torn: "It's easier for this country to get to the moon than it is to establish a repertory theater." He mentions several well-funded groups that failed to achieve stability.

Proving what Sanctuary can do artistically, he implies, takes precedence over fiscal grandeur. "That doesn't mean I don't want foundation support, however. Even Shakespeare had a patron."

At the behest of Actors Equity, Torn has obtained a five-year lease on Sanctuary's new folding-chair quarters to guarantee stability. Several real estate men, longtime friends, helped find the haven.

"Besides doing plays for the general public," the fledgling impresario reports, "we want to provide community service with classes for people in the neighborhood, and free tickets for young people and seniors."

Torn plans to do some new works—

playwright Jack Gelber is working with the group—but his main interest is in classic presentations.

Torn stars in the movie, "Betrayal," which airs Monday on Channel 2 at 9 p.m.

Torn hoped to do an uncut "Hamlet" to launch the new quarters, but delays now make it likely that along in January or February Page will star instead in "an 18th century European play I don't want to tell about because if I do there will be three or four other productions."

Page had been scheduled to star on the Great White Way this season in "Broadway, Broadway," which

collapsed out of town.

The couple note a highly propitious omen in the company's new home. It is just a couple of blocks from the spot where 26 years ago Page became an overnight star in revival of "Summer and Smoke."

Its author, Tennessee Williams, is one modern on the troupe's future schedule. "In fact," declares Torn, "I've got 50 or 60 plays that I want to do."



SANCTUARY FOUNDERS—Geraldine Page and Rip Torn pose in front of Greenwich House, a home for the Sanctuary Theater the pair founded.

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- He went to many games but the coach never came to call on him.
- The referee made a decision with which he could not agree.
- Some games went into overtime and he was late getting home.
- The band played some tunes he never heard before.
- He was taken to too many games by his parents when he was growing up.

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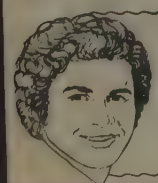
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Monday TV

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2—The Today Show
7:00 a.m.
2—Praise The Lord
11—CBS Morning News
8:00 a.m.
11—Captain Kangaroo
9:00 a.m.
2—Happy Days
11—All In The Family
9:30 a.m.
2—Wheel of Fortune
11—The Price Is Right
10:00 a.m.
2—Card Sharks
10:30 a.m.
2—Helpful Hints For Homemakers
11—Match Game '78
10:35 a.m.
2—Jeopardy
11:00 a.m.
2—High Rollers
11—The \$20,000 Pyramid
11:30 a.m.
2—Days of our Lives
11—Love of Life
11:55 a.m.
11—The KTVF News at Noon
Noon
11—The Young and the Restless
12:30 p.m.
2—The Doctors
11—Search for Tomorrow
1:00 p.m.
2—Another World
11—As The World Turns
2:00 p.m.
2—Hollywood Squares
9—Turnabout—"High and Dry"—Correspondent Felicia Lowe visits a family that pulled together to help their father recover from alcoholism. Three recovered women drinkers talk candidly about their experiences.
11—The Guiding Light
2:30 p.m.
2—America Alive
9—Over Easy
3:00 p.m.
9—Lilies, Yoga and You
11—Not for Women Only

3:30 p.m.
2—Family Feud
9—Mister Rogers' Neighborhood
11—Mike Douglas Show
4:00 p.m.
2—NFL Football
9—Sesame Street
4:30 p.m.
11—The Archies
5:00 p.m.
9—Electric Company
11—M*A*S*H
5:30 p.m.
9—Zoom
11—ABC World News Tonight
6:00 p.m.
9—Cache Your Cash—"Countertop Cooking: If You Can't Stand the Heat"—Learn the advantages and disadvantages of countertop cooking appliances: size and space limitations, versatility, and cleaning ease. (Repeats Tuesday.)
11—Fairbanks Evening News
6:30 p.m.
9—Over Easy
11—CBS Evening News with Walter Cronkite
7:00 p.m.
2—Vegas
9—MacNeil-Lehrer Report
11—Bobby Vinton's Rock-'N-Rollers—Music-variety special, starring Bobby Vinton, with a fast-moving trip into the nostalgia of rock 'n' roll. Guests are Penny Marshall, Erik Estrada, Fabian, Eve Arden, Gale Gordon, Frank Welker and Susan Buckner.
7:30 p.m.
9—Dick Cavett Show—Edward C. Wilson, sociobiologist, is guest.
8:00 p.m.
2—The Little House on the Prairie—Charles Ingalls and Johnathon Garvey learn an embarrassing lesson when they try to prove to their sons that they're not yet old enough to be called men.
9—Evening at Symphony—Dean Anderson is the percussion soloist with the Boston Symphony Orchestra and Music Director Seiji Ozawa in "Anarchy," by the contemporary Greek composer Nikos Mamangakis; pianist Murray Perahia is featured in Beethoven's Piano Concerto No. 4.
11—Lucy Comes to Nashville—Music and comedy special, starring Lucille Ball, with guest stars Lynn Anderson, Archie Campbell, Tom T. Hall, Barbara Mandrell, Ronnie Milsap, the Oak Ridge Boys and Mel Tillis.
9:00 p.m.
2—Movie—"Betrayal"
9—Visions—"Two Brothers"—Judd Hirsch and David Spielberg star in Conrad Bromberg's drama of a doctor who cannot cure his own mental illness, and the ultimate failure of his older brother to help him.
11—M*A*S*H—In this episode, the camera becomes the eyes of a young wounded soldier. It chronologically records his sensory responses to being wounded, flown by helicopter to the 4077th, examined, operated on and treated in post-operation.
10:00 p.m.
11—Lou Grant—A woman counselor in a ghetto high school tries to make Lou understand how violence has become a way of life in schools. Rev. Jesse Jackson makes a special guest appearance as himself.
10:30 p.m.
9—Economically Speaking—"Farm and Food Policy."
11:00 p.m.
2—Fairbanks Tonight, Tonight
9—Congressional Outlook—"Urban Policy."
11—Scope News
11:30 p.m.
2—The Tonight Show—Don Rickles is guest host with Carroll O'Connor, Jose Molina and Jim Stafford.
9—ABC Captioned News
11—The Rockford Files: "Caledonia, It's Worth a Fortune!"—Rockford is hired by Jolene, the wife of a convict, to find a fortune stashed on a ranch.
12:45 a.m.
11—Movie—"McMillan and Wife."
1:00 a.m.
2—Tomorrow

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7:00 a.m.
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11—CBS Morning News

8:00 a.m.
11—Captain Kangaroo

9:00 a.m.
2—Happy Days
11—All In The Family

9:30 a.m.
2—Wheel of Fortune
11—The Price Is Right

10:00 a.m.
2—Card Sharks

10:30 a.m.
2—Helpful Hints For Homemakers
11—Match Game '78

10:35 a.m.
2—Jeopardy

11:00 a.m.
2—High Rollers
11—The \$20,000 Pyramid

11:30 a.m.
2—Days Of Our Lives
11—Love of Life

11:55 a.m.
11—The KTVF News at Noon

Noon
11—The Young and the Restless

12:30 p.m.
2—The Doctors
11—Search for Tomorrow

1:00 p.m.
2—Another World
11—As the World Turns

2:00 p.m.
2—Hollywood Squares
9—Cache Your Cash—(Repeat from Monday)
11—The Guiding Light

2:30 p.m.
2—America Alive
9—Over Easy

3:00 p.m.
9—Lilies, Yoga and You
11—Not for Women Only

3:30 p.m.
2—Family Feud
9—Mister Rogers' Neighborhood
11—Mike Douglas Show

4:00 p.m.
2—To be announced
9—Sesame Street

4:30 p.m.
2—Animals, Animals, Animals
11—The Archies

5:00 p.m.
2—Fangface
9—Electric Company
11—M*A*S*H

5:30 p.m.
2—NBC Nightly News
9—Feeling Free
11—ABC World News Tonight

6:00 p.m.
2—Fairbanks Today
9—G.E.D. By T.V.—(Repeats on Saturday)
11—Fairbanks Evening News

6:30 p.m.
2—Fantasy Island
9—Aviation Weather
11—CBS Evening News with Walter Cronkite

7:00 p.m.
9—MacNeil-Lehrer Report
11—Happy Days—In a desperate effort to keep Richie from going to jail after he is charged with being the infamous Kissing Bandit of Milwaukee, the Fonzy uses a voluptuous lure as bait to catch the notorious night-stalker.

7:30 p.m.
2—Apple Pie
9—Dick Cavett Show—Marvin Harris, anthropologist, is guest.
11—Laverne and Shirley—In a moment of nostalgia, the girls reminisce about the riotous tangle of problems they had in turning a dump into a liveable pad when they decided to become roommates.

8:00 p.m.

2—Lifeline—William Morgan Jr., country physician and pediatric surgeon at Memorial Mission Hospital, Asheville, is the subject.

9—Soundstage—George Benson, Chet Atkins, and Earl Klugh, three of America's greatest guitar players, come together on "Soundstage" to present a dynamic evening of jazz, country and rock. Performing together and separately, the three display their distinctive styles that have changed the music world.

11—Billy Graham Christmas Special

9:00 p.m.

2—Big Event—"Lady of the House"—Dyan Cannon stars in a movie based on the life of Sally Stanford, the famed San Francisco madam who later became the mayor of a wealthy Bay-area suburb.

9—The Nobel Prize Awards—Just two days after the Nobel Prize ceremonies in Sweden, this program will feature documentary portraits of the 1978 Nobel Laureates, as well as official United States coverage of the ceremonies.

11—Movie—"The Pirate"—Part 1—Harold Robbin's contemporary novel of compelling human passion is set against a backdrop of Arab-Israeli intrigue. Stars Franco Nero, Anne Archer, Olivia Hussey, Ian McShane, Christopher Lee, Michael Constantine, James Franciscus and Eli Wallach. Part 2 airs Wednesday.

10:30 p.m.

9—Hanukkah—Actor Ed Asner hosts this explanation of the significance of Hannukah, which begins on Dec. 25 this year.—(Repeats on Thursday.)

11:00 p.m.

2—Fairbanks Tonight, Tonight

9—Consumer Survival Kit

11—Scope News

11:30 p.m.

2—The Tonight Show—Johnny Carson with Buddy Hackett, Anthony Hopkins, Marilyn McCoo and Billy Davis Jr.

9—ABC Captioned News

11—Barnaby Jones—"See Some Evil, Do Some Evil"—Stars Buddy Ebsen and Lee Meriwether. Barnaby answers a call from a prospective client, only to find the man dead before he could find out why he was needed. Roddy McDowall guest stars.

12:45 a.m.

11—Banacek: "Fly Me—If You Can Find Me"—Stars George Peppard and Sterling Hayden. A huge airliner disappears after making an emergency landing and it's up to Banacek to find it.

1:00 a.m.

2—Tomorrow



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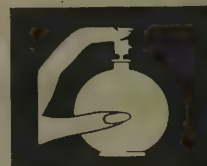
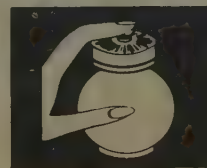
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MADAM MAYOR—Dyan Cannon stars as Sally Stanford, the famous San Francisco madam who later became mayor of a wealthy bay-area suburb, in "Lady of the House." Tuesday, Channel 2, 9 p.m.



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Wednesday TV

5:00 a.m.
2—The Today Show
7:00 a.m.
2—Praise the Lord
11—CBS Morning News
8:00 a.m.
11—Captain Kangaroo
9:00 a.m.
2—Happy Days
11—All In The Family
9:30 a.m.
2—Wheel of Fortune
11—The Price Is Right
10:00 a.m.
2—Card Sharks
10:30 a.m.
2—Helpful Hints For Homemakers
11—Match Game '78
10:35 a.m.
2—Jeopardy
11:00 a.m.
2—High Rollers
11—The \$20,000 Pyramid
11:30 a.m.
2—Days of Our Lives
11—Love of Life
11:55 a.m.
11—The KTVF News at Noon
Noon
11—The Young and the Restless

12:30 p.m.
2—The Doctors
11—Search for Tomorrow
1:00 p.m.
2—Another World
11—As The World Turns
2:00 p.m.
2—Hollywood Squares
9—Julia Child and Company—"Sunday Night Supper."
TV11—The Guiding Light
2:30 p.m.
2—America Alive
9—Over Easy
3:00 p.m.
9—Lilies, Yoga and You
11—Not For Women Only
3:30 p.m.
2—Family Feud
9—Mister Rogers' Neighborhood
11—Mike Douglas Show
4:00 p.m.
2—Scooby's All Stars
9—Sesame Street
4:30 p.m.
11—The Archies
5:00 p.m.
9—Electric Company
11—M*A*S*H
5:30 p.m.
2—NBC Nightly News
9—Zoom
11—ABC World News Tonight
6:00 p.m.
2—Fairbanks Today
9—Photography: Here's How
11—Fairbanks Evening News
6:30 p.m.
2—Charlie's Angels
9—Aviation Weather
11—CBS Evening News with Walter Cronkite
7:00 p.m.
9—MacNeil-Lehrer Report
11—Eight is Enough—Guest star is Jack Elam. When Nicholas accidentally starts a fire that almost burns down the house and ruins the celebration of Tom's and Abbey's first anniversary, the unhappy youngster, feeling unwanted and unloved, leaves home in search of a new family.
7:30 p.m.
2—Welcome Back Kotter
9—Dick Cavett Show—Edward O. Wilson and



IMMORTAL TEAM—Buddy Hackett and Harvey Korman star as the popular stage and film comedy team of Abbott and Costello in "Bud and Lou." Wednesday, Channel 2, 9 p.m.

Marvin Harris are guests.
8:00 p.m.
2—Dick Clark's Live Wednesday—Guest are Johnny Mathis, Neil Sedaka, Abba, Harvey Korman, Buddy Hackett, comedian David Frye and photographer Francesco Scavullo.
9—Wraparound—A KUAC special on the mid-life crisis and aging. The "Insight" film stars Bob Newhart and Anne Francis, for a humorous yet thoughtful look at a man fearfully approaching his fortieth birthday. Then KUAC examines some of the myths associated with the aging process. Wraparound is a phone-in show.
9:00 p.m.
2—Movie—"Bud and Lou"—Harvey Korman and Buddy Hackett star as the famed comedy team of Abbott and Costello in a drama about the behind-the-scenes challenges the two faced as they brought laughter to millions of fans on stage, in films, and on radio, television and records. Arte Johnson, Michele Lee and Robert Reed are featured.
9—Great Performances: Mourning Becomes Electra—"A Taste of Murder"—Ezra Mannon, who has just returned from fighting in the Civil War, confronts his wife Christine over her affair with Captain Adam Brant. The argument causes Ezra to suffer a heart attack and Christine doses him with poison instead of his medicine. Daughter Lavinia uncovers the murder and, with her brother Orin, vows revenge.
11—Movie—"The Pirate"—Part 2—(Continued from Tuesday.)

10:00 p.m.
9—Elizabeth Swados: The Girl With the Incredible Feeling—A joyous film in celebration of the unusual and varied talents of author/composer/performer Elizabeth Swados.
11:00 p.m.
2—Fairbanks Tonight, Tonight
9—JMT in Conversation—What programs and activities are available in Fairbanks for senior citizens? Guests are Seniors and the North Star Council on Aging, Inc. (Repeats on Thursday.)
11—Scope News
11:30 p.m.
2—The Tonight Show—Johnny Carson with guests Robert Klein, Erna Bombeck and Angie Dickinson.
9—ABC Captioned News
11—Movie—"The Spell"—Lee Grant stars as a mother who must learn to cope with her disturbed daughter—a troubled teen-ager who has the power to inflict harm on the people who tease and torment her. James Olson, Susan Myers and Helen Hunt also star.
12:40 a.m.
11—"Kojak: Both Sides of the Law"—Stars Telly Savalas, Dan Frazer, Kevin Dobson and George Savalas. David Opatoshu guest stars as a private detective competing with Kojak in trying to solve a peculiar mystery—five Rembrandt drawings mysteriously disappear, even though the thieves were caught at the scene of the crime.
1:00 a.m.
2—Tomorrow

Marie comfortable with role in dramatic Christmas movie

HOLLYWOOD (AP)—After 12 years as a performer, Marie Osmond makes her dramatic debut at the age of 19. Not only does she make her debut, but she falls in love and gets her first screen kiss in the ABC movie "The Gift of Love." The adaptation from O. Henry's "The Gift of the Magi," a costume piece set in the 1890s, airs Friday night.

"A Gift of Love" airs Friday on Channel 2 at 9:30 p.m.

"Now that I've done it I really find film fun," said Osmond, who normally is half of television's brother-and-sister act, "Donny and Marie."

"I was offered quite a few things before this," she said. "But we were not sure they were good because of the

content. There are certain parts I wouldn't feel right doing. You've got to deal with realism, but it can be overdone. You need to do something you'd feel comfortable watching."

Osmond didn't answer questions specifically about what kinds of roles she would reject, but it was obvious she meant films that deal realistically with sex.

Asked if she felt her convictions would limit her screen career, she replied, "I don't think those kinds of roles are necessary. There are so many other good parts. I think you should put across a message. The message here is love and sacrifice at Christmas."

She does, however, get her first screen kiss from co-star Timothy Bottoms.

"People say, 'Marie Osmond kisses?' Sure, she does! I'm getting married and it's natural in a relationship," the actress said.

The ABC movie, like "Donny and Marie," is an Osmond family production. But instead of making it at the family's production center in Orem, Utah, it was filmed on the old "Gone With the Wind" set in Culver City, Calif., and on the outdoor "Hello, Dolly" set at 20th Century-Fox.

Actually, it's not her first movie. She and Donny were in "Goin' Coconuts," but that was only an extension of her variety show image.

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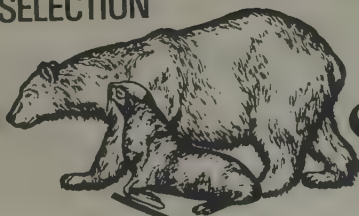
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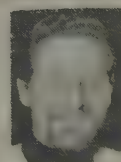
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Thursday TV

- 5:00 a.m.**
2—The Today Show
- 7:00 a.m.**
2—Praise the Lord
11—CBS Morning News
- 8:00 a.m.**
11—Captain Kangaroo
- 9:00 a.m.**
2—Happy Days
11—All in the Family
- 9:30 a.m.**
2—Wheel of Fortune
11—November Magazine—Features include: What it means to be upper class and black; a former prostitute's fight to legalize her profession; the Hospice—new help for the hopeless.
- 10:00 a.m.**
2—Card Sharks
- 10:30 a.m.**
2—Helpful Hints for Homemakers
11—Match Game '78
- 10:35 a.m.**
2—Jeopardy
- 11:00 a.m.**
2—High Rollers
11—The \$20,000 Pyramid
- 11:30 a.m.**
2—Days of Our Lives
11—TBA
- Noon**
11—The KTWf News at Noon
- 12:05 p.m.**
11—Matinee Eleven—"Take Her, She's Mine"—Stars James Stewart, Sandra Dee and Audrey Meadows. Hilarious comedy with Stewart as a father trying to prevent his daughter from leading a beatnik life and winding up in the soup himself.
- 12:30 p.m.**
2—The Doctors
- 1:00 p.m.**
2—Another World
- 1:43 p.m.**
11—TBA
- 2:00 p.m.**
2—Hollywood Squares
9—JMT in Conversation (Repeat from Wednesday)
11—Closer Look—Locally produced news special takes a look at the Fairbanks economy and issues facing Fairbanks and the Fairbanks area.
- 2:30 p.m.**
2—America Alive
9—Over Easy
- 3:00 p.m.**
9—Lilies, Yoga and You
11—Not for Women Only
- 3:30 p.m.**
2—Family Feud
9—Mister Rogers' Neighborhood
11—The Mike Douglas Show
- 4:00 p.m.**
2—To be announced
9—Sesame Street
- 4:30 p.m.**
2—The All New Pink Panther Show
11—The Archies
- 5:00 p.m.**
2—ABC Weekend Specials
9—Electric Company

- 11—M*A*S*H**
- 5:30 p.m.**
2—NBC Nightly News
9—Zoom
11—ABC World News Tonight
- 6:00 p.m.**
2—Fairbanks Today
9—G.E.D. By T.V. (Repeats Saturday)
11—Fairbanks Evening News
- 6:30 p.m.**
2—The Love Boat
9—Hanukkah—(Repeat from Tuesday.)
11—CBS Evening News with Walter Cronkite
- 7:00 p.m.**
9—The MacNeil-Lehrer Report
11—The Waltons—Grandma dates a gentleman friend who once proposed to her when she was young, and Elizabeth fears he is replacing grandpa. Arthur Space is featured.
- 7:30 p.m.**
2—Barney Miller
9—Dick Cavett Show—John Updike, writer, is guest. (Continues Friday.)
- 8:00 p.m.**
2—The Doug Henning Special
9—Nova—"The Tsetse Trap"—More than half the African grazing land suitable for cattle is infested by tsetse flies, carriers of bovine sleeping sickness. Featured is an examination of the complicated interaction of the flies, the parasites they carry, the animals they prey upon and the men who struggle for control of the tsetse's territory.
- 11—Hawaii Five-O

- 9:00 p.m.**
2—Quincy
9—Bernstein 60/An Appreciation
11—Starsky and Hutch
- 10:00 p.m.**
2—David Cassidy
9—A New England Christmas
11—Barnaby Jones
- 10:30 p.m.**
9—A Child's Christmas in Wales
- 11:00 p.m.**
2—Fairbanks Tonight Tonight
11—Scope News
- 11:30 p.m.**
2—The Tonight Show
9—ABC Captioned News
11—M*A*S*H
- 12:05 a.m.**
11—Columbo
- 1:00 a.m.**
2—Tomorrow

HONORED GUEST—
Leonard Bernstein's birth-dais celebrated in an evening of American music featuring Mstislav Rostropovich, the National Symphony Orchestra, Andre Previn, Yehudi Menuhin, Lillian Hellman and a score of other distinguished artists, on "Live From Wolf Trap." Thursday, Channel 9, 9 p.m.

Back to old home week

NEW YORK (AP)—It was like old times, and it made you wonder what happened the week before.

ABC listed the three most-watched prime-time TV programs for the week ending Dec. 3, dislodging three CBS offerings including "60 Minutes," which fell from first to fourth.

The overall effect on the A.C. Nielsen Co.'s weekly ratings was the same. ABC won the networks' competition, as it had despite CBS' strong showing the week before, with a rating of 19.7.

CBS was second at 19.5, followed by NBC at 18.7. The networks say that means in an average prime-time minute during the week, 19.7 per cent of the homes in the country were tuned to ABC.

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Friday TV

5:00 a.m.
2—The Today Show
7:00 a.m.
2—Praise the Lord
11—CBS Morning News
8:00 a.m.
11—Captain Kangaroo
9:00 a.m.
2—Happy Days
11—All In The Family
9:30 a.m.
2—Wheel of Fortune
11—The Price Is Right
10:00 a.m.
2—Card Sharks
10:30 a.m.
2—Helpful Hints for Homemakers
11—Match Game '78
10:35 a.m.
2—Jeopardy
11:00 a.m.
2—High Rollers
11—The \$20,000 Pyramid
11:30 a.m.
2—Days of Our Lives
11—Love of Life
11:55 a.m.
11—The KTVF News at Noon
Noon
11—The Young and the Restless
12:30 p.m.
2—The Doctors

11—Search for Tomorrow
1:00 p.m.
2—Another World
11—As the World Turns
2:00 p.m.
2—Hollywood Squares
9—La Cocina Mexicana
11—The Guiding Light
2:30 p.m.
2—America Alive
9—Over Easy
3:00 p.m.
9—Lilies, Yoga and You
11—Not For Women Only
3:30 p.m.
2—Family Feud
9—Mister Rogers' Neighborhood
11—The Mike Douglas Show
4:00 p.m.
2—Challenge of the Superfriends
9—Sesame Street
4:30 p.m.
11—The Archies
5:00 p.m.
9—Electric Company
11—Rose's Window
5:30 p.m.
2—NBC Nightly News
9—Zoom
11—ABC World News Tonight
6:00 p.m.
2—Fairbanks Today
9—A New England Christmas
11—Fairbanks Evening News
6:30 p.m.
2—Diff'rent Strokes
9—Aviation Weather
11—CBS Evening News with Walter Cronkite
7:00 p.m.
2—To Be Announced
9—MacNeil-Lehrer Report
11—The New Adventures of Wonder Woman—A ruthless mobster who wants to turn the town of Santa Corona into a warren of illegal gambling casinos uses Diana Prince's teen-age god-daughter, a skateboard champion, as his lever for blackmail and extortion.
7:30 p.m.
2—The Rockford Files—While Angel enjoys a brief play at city hall power peddling, Rockford and his nemesis, Lt. Chapman, are forced to cooperate to solve an art heist.

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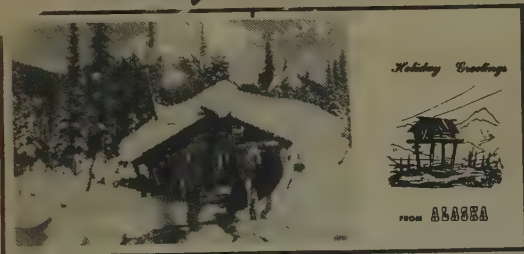
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CASINO CUTIES—Lisa, played by Connie Selleca, and Marcy, portrayed by Pat Klous, give a helping hand to Wilbur Dodson, played by Lew Ayres, in an episode of "Flying High." Friday, Channel 11, 10 p.m.

9—The Dick Cavett Show—(Continued from Thursday.)
8:00 p.m.
9—Washington Week in Review
11—The Incredible Hulk—David Banner gets caught in the middle of a national expose that takes the Hulk right into a publication's printing room.
8:30 p.m.
2—The Eddie Capra Mysteries—While Eddie Capra and Lacey are having personal problems, the maverick lawyer fights his growing personal feelings for a dead model whose murder he is investigating to clear his client.
9—Wall Street Week
9:00 p.m.
9—Congressional Outlook—"Nuclear Licensing"—Should the Federal Government speed up the licensing of nuclear power plants?
11—Three's Company—Jack and Janet are shocked as evidence mounts that Chrissy seems compelled to steal, not only from them but also from the Ropers.
9:30 p.m.
2—Movie—"The Gift of Love"—Marie Osmond makes her dramatic acting debut in this poignant love story set at Christmastime in New York City in the 1890s.
9—Turnabout—"Handle With Care"—In an exploration of new medical roles, correspondent

Felicia Lowe visits nurse practitioners and physician's assistants. Doctors, nurses, and patients comment on what the patients get from these new medical specialties.
11—Taxi—"Memories of Cab 804"—Part 1—When John cracks up Cab 804, the cabbies are shocked into a period of mourning, and reminisce about the wild and memorable events that occurred when they were driving the legendary cab.
10:00 p.m.
9—Masterpiece Theatre—The Duchess of Duke Street (Repeat from Sunday)
11—Flying High—Lew Ayres, David Hedison and singer Jack Jones guest star as an elderly dentist, his psychiatrist-son and a Las Vegas nightclub star with whom the Sunwest flight attendants become involved on a flight to Las Vegas.
11:00 p.m.
9—Alaska Review
11—Scope News
11:30 p.m.
2—The Tonight Show—Johnny Carson with Jean Michel Cousteau and Pete Fountain.
9—ABC Captioned News
11—Perspective
11:45 p.m.
11—Movie—"The New Avengers—Dead Men are Dangerous"—Steed returns to his house to find that everything he really cares about has been destroyed. He suddenly remembers an agent he once shot—who was officially dead but whom Steed is convinced is out to get him now.

1:00 a.m.
2—The Midnight Special—The Atlanta Rhythm Section hosts with Crystal Gayle, Paul Davis, Van Morrison, Ambrosia, The Cars and Sea Level.
11—Movie—"Super Cops"—Stars David Selby and Ron Leibman as two New York City police officers, nicknamed Batman and Robin, who are nominated to cleaning up their crime-ridden beat.

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'Bloodline' stars named for movie

NEW YORK (AP)—Audrey Hepburn will be joined by Irene Pappas, Omar Sharif, Claudia Mori and Gert Froebe in the film version of Sidney Sheldon's "Bloodline."

The film about intrigue in a giant pharmaceutical empire also stars Ben Gazzara, James Mason, Michelle Phillips, Maurice Ronet, Romy Schneider and Beatrice Straight.

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Saturday TV

7:30 a.m.
11—NFL Pre-Game
8:00 a.m.
11—NFL Football—Chicago Bears vs. Washington Redskins
8:30 a.m.
2—Galaxy Golf-Ups
9:00 a.m.
2—The Fantastic Four
9:30 a.m.
2—The Godzilla Super 90
11:00 a.m.
2—NFL Football—Pittsburgh at Denver
11—The All-New Popeye Hour

Noon

11—The Bugs Bunny/Road Runner Show
1:30 p.m.
11—Tarzan and the Super Seven

2:00 p.m.

2—The Daffy Duck Show
9—Adams Chronicles—Charles Francis Adams II: Industrialist—Charles Francis Adams II ultimately loses the battle of control of the Union Pacific Railroad to Jay Gould. Now both Henry and Charles turn to the past to better understand what the country and world have become. The Adamsses consciously withdraw from public life and the political leadership of a nation that has turned to values other than those inherent in the Adams philosophy.

2:30 p.m.

2—Yogi's Space Race

3:00 p.m.

9—Infinity Factory
11—ABC Wide World of Sports

3:30 p.m.

2—Fabulous Funnies
9—Freestyle

4:00 p.m.

2—The Bay City Rollers
9—G.E.D. By TV (Repeat from Tuesday)

4:30 p.m.

2—American Bandstand
9—G.E.D. By T.V. (Repeat from Thursday)
11—The Nutcracker—An innovative animated holiday special produced in the Soviet Union, with the classic music of Tchaikovsky.

5:00 p.m.

9—Big Blue Marble
11—Campmeeting Time in the Village

5:30 p.m.

2—NBC Nightly News
9—Studio See

11—Mutual of Omaha's Wild Kingdom—"Coral Sea Night Dive"

6:00 p.m.

2—Good News
9—Grin and Repair It—"Interior Decorating—Cheap Frills"—Learn the basics of wallpapering, laying a carpet, inside window shutters, linoleum tiling and tips on painting.
11—Fairbanks Evening News

6:30 p.m.

2—Carter Country
9—Black Perspective on the News
11—ABC Weekend World News Tonight

7:00 p.m.

2—Chips—A speed-crazy young sheik tries to convince CHP he is above obeying the traffic laws.
9—Soccer Made in Germany
11—Dr. Seuss' How The Grinch Stole Christmas—Animated cartoon based on Dr. Seuss' book of the same title. Boris Karloff narrates the story of the Grinch, who tries to steal Christmas from Whoville.

7:30 p.m.

11—The Tiny Tree—Animated special about a little girl who is in need of a merry Christmas and is treated to one by a very unique pine tree.

8:00 p.m.

2—Frankie and Annette: The Second Time Around—After being separated for years, Frankie and Annette of the class "beach party" movies are reunited. She's a sorority housemother and he's a singer filling in for a cancelled act on campus—will love bloom again?
9—Once Upon a Classic—"Secret Garden"—Young Mary Lennox learns more about the "secret garden." It was designed and cared for by her uncle and his wife, but one day a tree limb hit

Mrs. Craven and killed her. Wild with grief, Craven ordered the garden closed. Later, Mary hears soft cries in the manor and meets a nurse.
11—Mork and Mindy—Mork, with the help of an Orkan age machine, turns himself into a romantic old gentleman to court Mindy's grandmother out of her blues, which have been caused by the death of one of her few remaining friends.

8:30 p.m.

9—Julia Child and Company—"Informal Dinner"—A Casserole Roast of Veal is an elegant but simple dish for an informal dinner. Julia Child accompanies the veal with an unusual wok saute of grated zucchini and fresh spinach and finishes with a fool-proof Floating Island.

11—Movie—"Orca"—Stars Richard Harris, Charlotte Rampling and co-stars Will Sampson. The drama revolves around a research of Orca the killer whale, when she tangles with commercial fisherman Captain Nolan, who is trying to capture the great white shark for a \$250,000 bounty.

9:00 p.m.

2—Lifeline—Roger Freeman, chief of emergency obstetrics, Women's Hospital, Memorial Medical Center, Long Beach, Calif., is the subject, helping four mothers-to-be—three with serious medical problems.

9—Like the Wind—A charismatic Christian, an orthodox Jew, a black Baptist, a pacifist Quaker and a Catholic deacon each are seen in individual expressions of faith, manifest not only in worship, prayer and song, but through community service, business and professional dealings, and family life. The subjects describe the variety of their spiritual experience in their own words.

10:00 p.m.

2—Praise the Lord
9—National Geographic Special—"Living Sands of the Namib"—(Repeat from Sunday.)

10:30 p.m.

11—Dallas—Ray Krebbs falls in love with ambitious country and western singer Garnet McGee, played by guest star Kate Mulgrew.

11:00 p.m.

9—American Short Story—"Almos' A Man" and "Soldier's Home"—Levar Burton is a teenage farmhand in the deep south, struggling to grow up. "Soldier's Home" is Ernest Hemingway's story of the problems facing a returning World War I veteran as he tries to readjust.

11:30 p.m.

11—Theater Eleven—"Assault on a Queen"—Stars Frank Sinatra, Verna Lisi and Tony Franciosa. A daring group of men band together and hatch an ambitious plot to pull the biggest caper of them all—to rob the Queen Mary on the high seas by using a reconverted German U-boat. The screen play was written by Rod Serling.

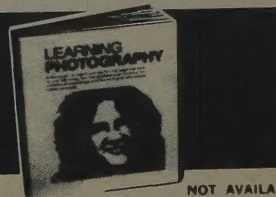
Midnight

2—Saturday Night Live



BEACH BLANKET REUNION—Annette Funicello and Frankie Avalon, who co-starred in many beach party movies in the '60s, have their feet in the sand once again in the musical, "Frankie and Annette: The Second Time Around." Saturday Channel 2, 8 p.m.

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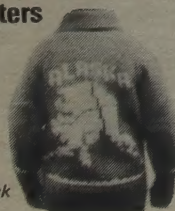
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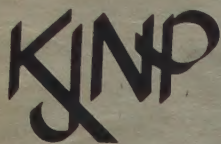
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DAILY

6:52 a.m.—Sign-On
7:30 a.m.—Heaven and Home Hour
7:55 a.m.—African Observer
8:00 a.m.—News
8:05 a.m.—Morning Chapel Hour
9:05 a.m.—Something to Sing About
(Monday, Wednesday and Friday) or Keep
Praising (Tuesday and Thursday)
10:30 a.m.—Old Time Gospel Hour
12:30 p.m.—Liberty Lobby
12:45 p.m.—Psychology for Living
3:05 p.m.—Haven of Rest
4:05 p.m.—Thru the Bible
6:45 p.m.—Stories of Great Christians
AP News and weather on the hour
11:05—Music Hour
11:30 p.m.—Nightwatch
12:05 a.m.—Sign-Off

SATURDAY

7:16 a.m.—Sign-On
8:05 a.m.—Over the Coffee Cup
9:05 a.m.—Morning Sunshine
10:05 a.m.—Behind the Headlines

4:05 p.m.—Hands in Harmony
6:15 p.m.—First Hand
6:30 p.m.—Unshacked
11:30 p.m.—Nightwatch
12:05 a.m.—Sign-Off

SUNDAY

7:52 a.m.—Sign-On
11:05 a.m.—Thru the Bible
3:05 p.m.—Family Bible Hour
6:15 p.m.—Day Spring
10:05 p.m.—Changed Lives
12:05 a.m.—Sign-Off
1:05 p.m.—Matinee
4:05 p.m.—Hands in Harmony
5:05 p.m.—Cameo Concert
6:15 p.m.—First Hand
6:30 p.m.—Unshacked
7:05 p.m.—Starlight Concert
11:30 p.m.—Night watch
12:05 a.m.—Sign-Off
KJNP-AM programming simulcast Sunday

DAILY

News on the hour

KUAC University
of Alaska104.7 on your
FM Dial

Sunday

6:00 a.m.—Sign On—"AM"
7:00 a.m.—Morning News
8:00 a.m.—Morning Concert—Bach: Brandenburg Concerto No. 1 in F; Respighi: Church Windows: Four Symphonic Impressions; Vaughan-Williams: Mass in G minor; Schumann: Symphony No. 3, "Rhenish"
10:00 a.m.—Toscanini: The Man Behind the Legend—Debussy: Iberia, Images for Orchestra; Wagner: Death and Funeral March
11:00 a.m.—Collector's Corner
Noon—All Things Considered
1:00 p.m.—Voices in the Wind
2:00 p.m.—American Music Sampler—"The Music of Henry Cowell, Part 2."
3:00 p.m.—Osborne's Choice—Bach: Cantata #140; Well Tempered Clavier, Key of D; Gregorian: 1st Mass for Christmas Day
5:00 p.m.—Music A La Carte
5:45 p.m.—KUAC News
6:30 p.m.—People and Ideas
7:00 p.m.—Washington Week In Review
7:30 p.m.—Folk Festival USA—"Mikis Theodorakis in Concert"—During his lifetime, Mikis Theodorakis has been a musician, conductor, poet and political prisoner. This concert was recorded during a recent tour in the U.S. Theodorakis performs with his concert ensemble of five singers and a septet including solo bouzouki and flute.
9:30 p.m.—KUAC News
9:45 p.m.—Any Old Time—A program of traditional American folk music featuring workshops and live performances by local musicians.
11:15—Oscillations—Rock, folk, jazz and blues.
Midnight—Midnight News Summary

Monday

6:00 a.m.—Sign On—"AM"
7:00 a.m.—Morning News
8:00 a.m.—Da Camera—20th Century—Ravel: Berceuse on the Name of Gabriel Faure; Milhaud: Paris (Suite for four pianos); Debussy: String Quartet in G minor, Op. 10; D'Indy: Variations on a Theme by Rameau.
9:00 a.m.—Morning Concert—Beethoven: Leonore Overture No. 1; Suk: Serenade for Strings; Liszt: Piano Concerto No. 1 in E-flat; Bizet: Bohemian Scenes from The Fair Maid of Perth; Dvorak: Symphony No. 6.
11:00 a.m.—BBC Concert Hall—The English Chamber Orchestra and the BBC Chorus perform selections from Handel's "Semele."
Noon—All Things Considered
1:30 p.m.—Radio Smithsonian
2:00 p.m.—Matinee—Schumann: Art of Adolf Busch: Program 1 Sonata for Violin and Piano in A minor, Op. 105; Bach: Sonata for Violin and Klavier in E Major; Beethoven: Sonata No. 8 in G Major for Violin and Piano, Op. 30, No. 3; Rachmaninoff: Symphonic Dances; Manevich: Concerto for Clarinet and Orchestra.
4:00 p.m.—National Press Club
5:00 p.m.—Music A La Carte
5:45 p.m.—KUAC News
7:30 p.m.—New York Philharmonic—Zubin Mehta conducts with violinist Isaac Stern, performing Peter Maxwell Davies' Symphony (American premiere); and Brahms: Violin Concerto.
9:30 p.m.—KUAC News
9:45 p.m.—The Arctic Saga
10:00 p.m.—Oscillations
Midnight—Midnight News Summary

Tuesday

6:00 a.m.—Sign On—"AM"
7:00 a.m.—Morning News
8:00 a.m.—Da Camera
9:00 a.m.—Morning Concert
11:00 a.m.—First Hearing
Noon—All Things Considered
1:30 p.m.—Auditorium Organ
2:00 p.m.—Matinee
4:00 p.m.—Options in Education—"Children In Mental Institutions"—A comprehensive look at the 70,000 children who will spend at least a part of their years between birth and age 18 in mental institutions.
5:00 p.m.—Music A La Carte
5:45 p.m.—KUAC News
7:30 p.m.—Campus Musica—Peabody Wind Ensemble—Berger: Rondo Ostinato on a Spanish Theme; Hovhannes: Symphony No. 4; Husa: An American Te Deum.
9:30 p.m.—KUAC News
9:45 p.m.—Literary Scrapbook
10:00 p.m.—Oscillations
Midnight—Midnight News Summary

Wednesday

6:00 a.m.—Sign On—"AM"
7:00 a.m.—Morning News
8:00 a.m.—Da Camera—Romantic
9:00 a.m.—Morning Concert
11:00 a.m.—Listening Room—"Transcriptions."

Noon—All Things Considered
1:30 p.m.—Accademia Monteverdiana
2:00 p.m.—Matinee—Schubert: The Art of Adolph Busch: Program 2: Rondo brilliant in B minor for Violin and Piano, Op. 70.
4:00 p.m.—Options—An interview with historian Barbara Tuchman about life and living in the 14th Century.
5:00 p.m.—Music A La Carte
5:45 p.m.—KUAC News
7:30 p.m.—One Land, Many Voices—"75 Years of Ethnic Recordings."
8:30 p.m.—Music from India
9:30 p.m.—KUAC News
10:00 p.m.—Oscillations
Midnight—Midnight News Summary

Thursday

6:00 a.m.—Sign On—"AM"
7:00 a.m.—Morning News
8:00 a.m.—Da Camera—20th Century
9:00 a.m.—Morning Concert—Telemann: Overture in D Major for 2 Oboes, 2 Horns and Strings; Haydn: Symphony No. 17 in F; Wagner: Rienzi Overture; Mendelssohn: Symphony No. 5 in D, "Reformation"; Rachmaninoff: Piano Concerto No. 2 in C minor.
11:00 a.m.—In Recital—Parrenin String Quartet—Roussel: Quartet in D; Schoenberg: Serenade.
Noon—All Things Considered
1:30 p.m.—Singers World
2:00 p.m.—Matinee—Hummel: Clarinet Quartet in E-flat Major; Schumann: Manfred Overture; Chopin: Piano Concerto No. 1 in E-flat; Prokofiev: Violin Concerto No. 1 in D.
4:00 p.m.—Options—"How to Fly"—About the 75th anniversary of the historic flight of the Wright brothers.
5:00 p.m.—Music A La Carte
5:45 p.m.—KUAC News
7:30 p.m.—NPR Recital Hall—"All Charles Ives Program"—Pianist Alan Mandel, violinist Nancy Mandel and soprano Elizabeth Kirkpatrick perform several works by Charles Ives.
9:30 p.m.—KUAC News
10:00 p.m.—Oscillations
Midnight—Midnight News Summary

Friday

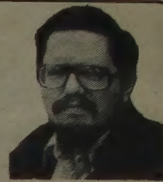
6:00 a.m.—Sign On—"AM"
7:00 a.m.—Morning News
8:00 a.m.—Da Camera—Baroque—Arne: Harpsichord Sonata No. 7 in A; Vivaldi: Concerto No. 9 in B-flat for Violin, Strings and Continuo; Caldara: Cantata: "Vicinno a un Rivololetto"; Bach: Brandenburg Concerto No. 4.
9:00 a.m.—Morning Concert—Tchaikovsky: Violin Concerto; Haydn: Piano Concerto in D, Op. 21; Liszt: Symphonic Poem: Les Preludes; Prokofiev: Symphony No. 3.
11:00 a.m.—The Vocal Scene—"Goyescas, for the Keyboard and the Stage."
Noon—All Things Considered
1:30 p.m.—Talking About Music
2:00 p.m.—Matinee—Mozart: The Art of Adolf Busch: Program 3: Sonata for Piano and Violin in E-flat Major, K. 481; Schumann: Sonata for Violin and Piano in D minor, Op. 121; Beethoven: Symphony No. 1; Ives: Robert Browning Overture.
4:00 p.m.—Options—"Vampires"—20th century man has not lost his bizarre fascination for the primitive fear and mystery of the living dead. In this program David Selvin examines the old and the new of an ancient legend.
5:00 p.m.—Music A La Carte
5:45 p.m.—KUAC News
7:30 p.m.—Chicago Symphony—James Levine conducts—Mendelssohn: Oratorio, Elijah, Op. 70.
10:00 p.m.—KUAC News
10:15 p.m.—Oscillations
Midnight—Midnight News Summary

Saturday

6:00 a.m.—Sign On—"AM"
7:00 a.m.—Morning News
8:00 a.m.—Morning Concert—Music by Beethoven, Born Dec. 16, 1770—Piano Sonata in C minor, Op. 13, "Pathétique"; String Quartet in E-flat, Op. 74; Piano Sonata No. 29 in B-flat Major, Op. 106 "Hammerklavier"; Symphony No. 5.
10:30 a.m.—Music With a Program—The relationship between music and program.
11:00 a.m.—Boston Camerata—Music of Marc-Antoine Charpentier.
Noon—All Things Considered
1:00 p.m.—One Land, Many Voices
2:00 p.m.—Metropolitan Opera—A new production of Bedrich Smetana's "Bartered Bride" sung in English. This spirited work depicts village life in Bohemia, and is considered to be one of the finest folk operas ever written.
5:00 p.m.—Music A La Carte
5:45 p.m.—KUAC News
7:00 p.m.—Jazz Revisited
7:30 p.m.—Jazz Alive!
9:00 p.m.—KUAC News
9:45 p.m.—Oscillations
Midnight—Midnight News Summary

MEDIA
CONSUMER

By DEAN M. GOTTEHRER



ALASKA'S SUPREME COURT CHIEF JUSTICE Jay Rabinowitz remembers two experiences with cameras in his courtroom several years ago. "This camera made a lot of noise and I was continually distracted and aware that the camera was whirring away (during a swearing in ceremony). Every time he cranked it up again I was conscious of that and would lose my train of thought. The other experience was still cameras in admission and naturalization ceremonies. I was also aware of the clicking of the shutters," Rabinowitz told the November monthly meeting of the Least South Chapter of The Society of Professional Journalists-Sigma Delta Chi.

Rabinowitz spoke of the history of cameras in courtrooms, told of the Hauptmann and Estes circuses where cameras interfered with the serious decorum and dignity of the judges and the legal system. He also spoke of states now "actively permitting non-print media to come into the courtroom to report proceedings."

Reflecting his background as a lawyer and jurist, Rabinowitz is good at posing and answering his own question. "What," he asked, "has been the standard objection to cameras since the Lindberg trial? Well," he answered, "it is that judicial proceedings are supposed to be conducted in an atmosphere where the jurors, the judge, the witnesses can pay close attention to the proceedings. They are not distracted, they are not under extraneous pressure because the adversary system of justice we have here is sufficiently tension-filled that we don't need extra pressures."

Rabinowitz spoke of Alaska's change from territory to state and how the courts had a code of judicial conduct that prohibited broadcasting from or photographing in the courtroom.

"But," Rabinowitz added, "times have changed. The Supreme Court of Alaska was persuaded that there really is an affirmative duty to make the system comprehensible to the people who use it and to the rest of the citizens of Alaska. One of the most effective ways of making it comprehensible is through non-print media."

The justices studied rules from other states. They were aware of Colorado's experiences and Florida's experiment. They spoke with Colorado's chief justice where cameras have been in courtrooms for more than 20 years. They asked an advisory committee what it thought about allowing cameras in the courtroom.

"Our advisory committee on rules of criminal procedure recommended against the Supreme Court adopting this experiment—the rule that we finally came down with," Rabinowitz said. "The objection was again that these have to be very careful proceedings and the defendants' rights will probably be watered away because of a lack of a dispassionate, calm atmosphere. I think everyone had in mind the Estes circus. We weighed everything and the court was not unanimous. We promulgated a rule to establish an experimental plan in Anchorage for a year. We're going to watch and monitor and see what happens."

THE RULE, DISCUSSED IN LAST week's column, was not as liberal as the Florida rule. Alaska allows cameras in Anchorage courts and in Supreme Court meetings wherever the court is sitting. Everyone who wants to use a camera in the courtroom must obtain permission from all participating attorneys and the judge. Any witness, juror or other party who does not want to be photographed may not be photographed.

"What's been my personal experience and our court's experience?" Rabinowitz asked. He answered, "Unfortunately I can't relate to you what's happening in the trial courts, other than I understand that Judge Moody in a non-juried proceeding in the election contest cases had no real difficulties with still cameras, TV, radio broadcasting in his Superior Court courtroom."

"At the Supreme Court level," Rabinowitz continued, "we've had two arguments that have been televised. The first was the Beirne Initiative. It was an incredibly dull argument for the most part. That's one of the dangers, you know. You take your chance when you come into the courtroom."

The second oral argument was the contested gubernatorial primary. It was held in the Supreme Court's Anchorage courtroom, which was not constructed for broadcast coverage. Two cameras were set up in the court—one behind the justices, which was remote controlled, and another in the rear of the courtroom in what Rabinowitz described as "sort of a duck blind—behind canvas that looked like a fortune teller's tent." It was the best that could be constructed in a short time.

"The election contests case was the first case I sat on as chief justice for the second time. I distinctly recall I was very nervous when I started out. Later on I calmed down during the argument."

"Am I aware that there are cameras in the argument and what has been the impact on the court?" Rabinowitz asked. He answered, "I would say that at times, when the argument is dull, I am aware that there is a camera there. But if the argument is good, you don't even know there is an audience there. You don't know there is a camera there."

"We did have a request to bring in still cameras during the election contest argument. I persuaded the court not to do it in the second argument which is how I related the earlier anecdote about admissions and swearing in ceremonies. I can distinctly remember being distracted by the whirring of the shutters and they were constant—uhrrr, bang, uhrrr, bang. I don't know whether cameras have changed and now they're silent. If they are, we'll try them."

As Rabinowitz spoke, photographer Eric Muehling of the News-Miner circled slowly around the side room of Auggies taking pictures of Rabinowitz—so silently Rabinowitz was unaware that pictures had been taken.

* * *

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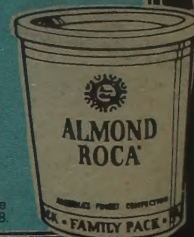
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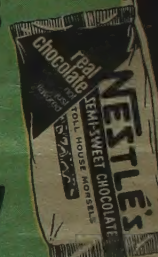
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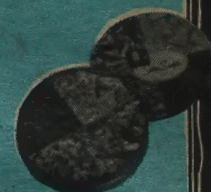
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- Limit 10

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5/\$1.00


WITH THIS COUPON
One coupon per customer. Cash value
1/20 of 1c. Offer expires Dec. 12, 1978.

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Gladding

SNOW DISC

- Downhill racing
- All plastic construction
- Fun for the entire family
- No. 726
- Limit 1

Reg. 6.99

4.99


WITH THIS COUPON
One coupon per customer. Cash value
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